Varazdin Development and Entrepreneurship Agency
in cooperation with
University North, Croatia
Faculty of Management University of Warsaw, Poland

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27th International Scientific Conference on Economic and Social Development

Editors:
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PRIVATE ENFORCEMENT OF COMPETITION LAW IN CROATIA – THE NEW ACT ON ACTIONS FOR DAMAGES FOR INFRINGEMENT OF COMPETITION LAW

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ABSTRACT

The aim of this article is to analyse the situation in the area of damage claims for the infringement of competition law in the Republic of Croatia. The new Act on actions for damages for infringements of competition law contains substantive and procedural rules governing actions for damages for infringements of the competition law provisions. The substantive rules concern the subject matter and scope of the application, the right to full compensation, the presumption that cartel infringements cause harm, joint and several liability of undertakings' that have caused the infringement through joint behavior, passing on overcharges, the effects of consensual settlements on subsequent actions for damages. The procedural rules consist of definitions and rules governing disclosure of evidence, especially the disclosure of evidence included in the file of a competition authority, the effect of the competition authorities' and the courts' final decisions, the limitation periods, postponement of the action for damages for up to two years due to consensual dispute resolution in respect of the claim. Special emphasis will be on certain rules that depart from our legal tradition. The author will attempt to indicate the problems resulting therefrom and offer possible clarifications.

Keywords: *Competition Law, Damage Claims, the European Union, the Republic of Croatia*

1. INTRODUCTION

There has been a lively debate on the possibilities of damage claims in the competition law in the last few years. There is a longstanding perception that private enforcement of competition rules is underdeveloped, uncertain and ineffective. In Europe private enforcement is seen as a mean of ensuring compensation for damages and also a deterrent mechanism for possible future infringements. The Directive on rules governing actions for damages for infringement of competition law ("Directive") is the first directive enacted in the field of competition law. It has been passed on 26 November 2014. The aim of the Directive is dual. The first one is to maximize the interaction between the private and public enforcement of competition law and the second concerns the full compensation for the competition law infringements (Lianos, 2015, p. 34). The aim of this article is to scrutinize the situation in the area of damage claims for the infringement of competition law in the Republic of Croatia. The area is still in the embryonic stage in most European countries as well as in Croatia. Croatian legislator had a choice to adopt a separate act or to implement the Directive in the existing acts. The first solution was chosen. It is also important to stress that unlike other EU countries, Croatia, has not been involved in the legislative process which led to the adoption of the Directive. This article will provide some insight into the Croatian rules on the damages claims, especially after the new Act on actions for damages for infringements of competition law ("Act") came into force. The Act contains both substantive and procedural rules governing actions for damages for infringements of the competition law provisions. Special emphasis will be on certain rules that depart from our legal tradition. The author will attempt to indicate the problems resulting therefrom and offer possible clarifications.

2. SUBJECT MATTER AND SCOPE OT THE ACT

Article 1 of the Act provides that it sets out certain rules necessary to ensure that anyone who has suffered harm caused by an infringement of competition law by an undertaking or by an association of undertakings can effectively exercise the right to claim full compensation for that harm from that undertaking or association. It should be stressed that according to our general law, we already have a rule of full compensation (Art. 1090 of the Civil Obligation Act). This Act sets out rules coordinating the enforcement of the competition rules by competition authorities and the enforcement of those rules in damages actions before competent commercial courts. The last provision is not a novelty, as the only one provision dealing with private enforcement before the Act, was the one giving the jurisdiction for the antitrust damages claims to commercial courts (Art. 34b(9) of the Civil Procedure Act). Article 3 enshrines familiar competition concepts and terms. It contains some definitions already known from the jurisprudence of the Court of Justice of the European Union ("CJEU"). This Act covers not only the infringement of provisions that regulate prohibited agreements and the abuse of dominant position but also the infringement of Art. 101 or 102 of the Treaty on the Functioning of the European Union ("TFEU"). This means that the infringement can be the infringement of Art. 101 or 102 of the TFEU and also of national competition law. According to the Act the "national competition law" means provisions of national law that predominantly pursue the same objective as Articles 101 and 102 and that are applied to the same case and in parallel to Union competition law pursuant to Article 3(1) of Regulation (EC) No 1/2003. The term court means the territorially competent commercial court and the High Commercial Court according to rules of organization and jurisdiction of courts. The right to compensation is recognized for any natural or legal person. Definition of action for damages plays a central role. An action can be brought by an alleged injured party. It also covers someone acting on behalf of one or more alleged injured parties and also natural or legal person that succeeded in the right of the alleged injured party. The last possibility encompasses collective actions by collective entity. Cartel is defined as an agreement or concerted practice between two or more competitors aimed at coordinating their competitive behavior on the market or influencing the relevant parameters of competition through practices such as, but not limited to, the fixing or coordination of purchase or selling prices or other trading conditions, including in relation to intellectual property rights, the allocation of production or sales quotas, the sharing of markets and customers, including bid-rigging, restrictions of imports or exports or anti-competitive actions against other competitors. The later examples derive from the CJEU's case law.

3. THE RIGHT TO COMPENSATION

Since the Directive is not a full harmonization directive the member states are free to introduce stricter rules so long as those rules do not conflict with the principles of the Directive. The injured party who has suffered harm caused by an infringement of competition law is able to claim and to obtain full compensation for that harm. Our legislator introduced a more extensive rule. Damage shall imply a loss of person's assets (pure economic loss), halting of assets increase (loss of profit) and violation of privacy rights (non-material damage) plus the payment of interest (Art. 5). Our Act covers material and non-material damages. Interest is due from the time when the harm occurred until the time when the compensation is paid. This is in line with our general tort principles. Non-material damage is not limited. Regarding the non-material damage, it will be interesting to see how the infringement of competition law can affect personal rights. The Directive refers to the recovery of actual loss and loss of profit plus the payment of interest. Our legislator introduced more ways for compensation than the Directive. It can also be seen from our general rule stating that a legal person has a right for a fair money compensation for non-material damages. In the event of the violation of personality rights, an injured party may request a disclosure of the judgement or its modification at the expenses of

the defendant, or the court can order a just pecuniary compensation. According to our general rule a person who has caused damage to another shall compensate it unless it has proven that the damage had not occurred as a result of his fault. Lack of duty of care shall be presumed (Art. 1045 of the Civil Obligation Act). Here we are speaking of the presumed fault. The Directive requires strict liability. So an Act states that the infringer that caused harm by infringement of competition law shall be liable for damage caused regardless of fault (Art. 5). Strict liability rule requires the harm or likehood of the harm to be determined (Lianos, Davis, Nebbia, p. 34). It is argued that it can lead to unjust situations. The undertaking is always obliged to compensate for the full harm. Taking into the account the nature of harmful acts committed as competition law infringements and the characteristic of the torfeasor as an undertaking, the highest possible level of care is required. If we left the standard of presumed fault, there would be a possibility for the infringer to be exculpated by proving that the undertaking applied a high standard of care. In order to facilitate the position of injured party in the case of cartel infringement, there is a presumption that cartel infringements cause harm unless the infringer rebuts that presumption. Competition law infringements cover not only damage on assets or infringement of personal rights but also the state of market. Surprisingly the Directive left the issue of causation, thus leaving it to the national general tort law provisions. According to our legal thinking the cause must be a typical cause, one which regularly causes certain harmful consequences. There has to be shown an unbroken causal link. The causal link must connect all three elements: the harmful act, the distortion of competition and the harm to the given victim. There is one situation that helps the position of the claimant in the case of cartel infringement. The Act says that damage caused in relation with an infringement of competition law in the form of cartel, shall be considered as resulting from that cartel unless it has been proved that the cartel has not caused the damage. It is a presumption of causality.

4. EVIDENCE AND INFORMATION ASYMMETRY

The Act has precise rules on the disclosure of evidence necessary for issuing damage claims and special provision of disclosure of evidence included in the file of a competition authority. Before the Act, the claimants had two possibilities to obtain the necessary documents: either to use the provisions of the Competition Act or the Act on the right of access to public information with very limited reaches. Now the situation is changed in favour of possible claimants. There is a general rule with some conditions to fulfil. The claimant has to present a reasoned justification in order for the national court to be able to order the disclosure of specified items of evidence. Articles 5 to 8 deal with different aspects of the disclosure of evidence. The disclosure of evidence has to be supported by plausible claim. The claimant has to present reasonably available facts and evidence sufficient to support the plausibility of its claim for damages. It is a safeguard clause. When we speak about competition we speak about business secrets. Special question concerns the disclosure of confidential information. There is an explicit rule granting to national judges the power to order documents containing confidential documents. This is seen an improvement as until now, we did not have precise rules on the preservation of confidential information. It is important to note that pre-existing documents that are contained in the file of competition authority may be disclosed at any time. In order to tackle the situation of information asymmetry in collecting evidence, we have articles giving competence to national courts to order disclosure of evidence from parties of the proceedings and from third parties. The national courts have a power to order the defendant or a third party to disclose relevant evidence which lies in their control, provided that the claimant has presented a reasoned justification. It is interesting to note that the Directive speaks of the categories of evidence. Our legal tradition doesn't distinguish categories of evidence so the Act addresses "the relevant evidence". Where relevant evidence is not within the control of the

defendant, but is included in the file of a competition authority, it may be required by a national court to disclose the relevant evidence provided that it cannot reasonably be obtained from another party or from the third party. The court has to safeguard the effectiveness of the public enforcement of competition law. Here the Court has a lot of discretion. There is the so-called grey list of categories of evidence, whose disclosure can be ordered by national court only after a competition authority has closed its proceedings by adopting a decision. It is important to note that there is an absolute ban on the disclosure of leniency statements and settlement submissions (Art. 9). It applies to all leniency statements (immunity from fines or a reduction of fines). The last statement is of little importance for Croatia, as according to available data there has been only one leniency submission notwithstanding the legislative act (see Regulation on the method of setting fines). When we speak about leniency we speak about the cartels. The most efficient tool to detect cartel are leniency statements. Without according protection for the applicants detecting cartels, there would not be any incentive to go to Commission or to the national agency. Evidence obtained solely through access to the file of a competition authority can be used in an action for damages only by the natural or legal person who obtained the evidence or the person succeeding to that person's right, including the person that acquired that person's claim. There are also "sufficiently deterrent penalties" for the parties to the proceedings, but also against third parties that do not comply with a disclosure order of a national court.

5. LIMITATION PERIODS

There is a precise stipulation of when periods start to run. Limitation periods shall not begin to run before the infringement of competition law has ceased and the claimant knows, or can reasonably be expected to know of the infringement of competition law, damage and the identity of the infringer. Croatian Law changed the limitation period comparing to our general rules. Now the period for bringing action for the infringement of competition law is five instead of three years. There is precise stipulation of when periods start to run. Limitation periods shall not begin to run before the infringement of competition law has ceased and the claimant knows, or can reasonably be expected to know of the infringement of competition law, damage and the identity of the infringer. There are certain conditions to satisfy: the claimant must be aware of the behaviour and of the fact that such behaviour amounts to an infringement of completion law provisions. Possible difficulties could be with the start of the limitation period because sometimes it is difficult to establish precisely when the infringement has ceased. The limitation period is interrupted, if a competition authority takes action for the purpose of investigation or its proceedings in respect of an infringement of competition law to which the action for damages relates and for the duration of consensual dispute resolution process, but only with regard to those parties that are involved in the process. The period for bringing actions shall expire within 15 years from the date the infringement of competition law has ceased.

6. EFFECTS OF NATIONAL DECISIONS

The infringement of competition law found by a final decision of the Agency or in the administrative dispute before the High Administrative Court against the decisions of the Agency is deemed to be irrefutably established for the purposes of an action for damages brought before the courts (Art. 11). This is full proof that the infringement has occurred. Where the final decision is rendered in another state, the situation is little bit different. In this case the infringement decision has to be assessed along with any other evidence adduced by the parties. Article 11 says that where the infringement of Article 101 and/or Article 102 is found by final decision taken in another Member State, it is also deemed to be established for the purpose of actions for damages, unless proven to the contrary. The national courts have discretion and it is a presumption that the national court will look into details at the facts and reach its own conclusions on the issue of infringement. Here we have a binding proof of the infringement

established by our Agency or the Commercial court. It will be seen how much weigh will be given to decisions adopted by other member states. These are the effects of final infringement decisions adopted by the Agency or the national review courts in the framework of subsequent actions for damages before national courts. The idea is to prevent a situation where the finding of an infringement would be re-litigated in subsequent actions for damages (Recital of the Directive, para. 34). The claimants do not have to prove the scope of the infringement again and can concentrate to the causation and the quantum of damages.

7. JOINT AND SEVERAL LIABILITY

The undertakings which have infringed competition law through joint behaviour are jointly and severally liable for the harm caused by the infringement of competition law. The consequence is that each of those undertakings is bound to compensate for the harm in full, and the injured party has the right to require full compensation from any of them until he has been fully compensated. It means that it can address claim to the most solvent undertaking.

Immunity recipient is fully protected except in one situation. It will be responsible to its direct and indirect purchasers and to other injured parties only where full compensation cannot be obtained from other undertakings that were involved in the same infringement of competition law. A co-infringer should have the right to obtain a contribution from other co-infringers if it has paid more compensation than its share. The determination of that share is a relative responsibility of a given infringer, and the relevant criteria could be a turnover, market share, or a role in the cartel. An infringer may recover a contribution from any other infringer, the amount of which shall be determined in the light of their relative responsibility for the harm caused by the infringement of competition law. The amount of contribution of an infringer which has been granted immunity from fines under a leniency programme shall not exceed the amount of the harm it caused to its own direct or indirect purchasers or providers.

8. THE PASSING-ON OF OVERCHARGES AND THE RIGHT TO FULL COMPENSATION

The question of passing-on the overcharges is one of the most complex and discussed questions of the Directive. The overcharge is defined as the difference between the price actually paid and the price that would otherwise have prevailed in the absence of an infringement of competition law (Art. 2 para 20 of the Directive). It can be invoked by the defendant, but the defendant may try to claim that the direct purchaser did not experience any harm because it passed the overcharge on (Wijkmans, Visser, Jaques, Noël, 2016, p. 59). The principle is that the indirect purchasers, consumers included, are entitled to compensation by the infringer for the harm suffered. The defendant in an action for damages can invoke as a defense against a claim for damages the fact that the claimant passed on the whole or part of the overcharge resulting from the infringement of competition law. There can be difficulties for follow-on claimants to prove the extent of harm caused. The burden of proving that the overcharge was passed on shall be on the defendant, who may reasonably require disclosure of evidence from the claimant or from third parties (Art. 15). The burden of proof is placed on the one that does not have the necessary evidence. There is a rebuttable presumption that the indirect purchaser has shown the existence of passing-on of an overcharge to him if certain conditions are met (Art. 15 para 3). This paragraph shall not apply where the defendant can demonstrate credibly to the satisfaction of the court that the overcharge was not, or was not entirely, passed on to the indirect purchaser (Art. 15 para 4). In assessing whether the burden of proof is satisfied, the court may take due account of actions for damages that are related to the same infringement, but are brought by claimants from other levels in the supply chain, judgements resulting from the previous situation and any relevant information in the public domain purchaser (Art. 15 para 5).

9. QUANTIFICATION OF HARM

To ease the position of the victims of the cartel the Act has a rebuttable presumption with regard to the presence of harm resulting from the cartel. The infringing undertaking can try to prove that the cartel did not cause harm. It is interesting to note there is no such presumption concerning damages caused by the abuse of a dominant position. There is an interesting ruling of mutual cooperation between the courts and national competition agencies. A national competition authority may, upon request of a national court, assist the national court with respect to the determination of the quantum of damages where that national competition authority considers such assistance to be appropriate. In order to help national courts, the Commission published Guidance on the quantification of harm (Communication from the Commission on quantifying harm in actions for damages based on breaches of Article 101 or 102 of the TFEU).

10. CONSENSUAL SETTLEMENTS

The Act as well as Directive promotes the "once for-all settlement" in order to reduce uncertainty for infringers and injured parties. One of the methods are consensual dispute resolution mechanisms such as arbitration, mediation and conciliation (Lianos, Davis, Nebbia, 2015, p.60). The limitation period for bringing an action for damages will be suspended for the duration of any consensual dispute resolution process. The suspension will apply only with regard to those parties that are or that were involved or represented in the consensual dispute resolution. The period may last for up to two years. Following the consensual settlement, the claim of the settling injured party is reduced by the settling co-infringer's share of the harm that the infringement of competition law inflicted upon the injured party. Any remaining claim of the settling injured party shall be exercised only against non-settling co-infringers. Non-settling co-infringers shall not be permitted to recover contribution for the remaining claim from the settling co-infringer. Where the non-settling co-infringers cannot pay the damages that correspond to the remaining claim of the settling injured party, the settling injured party may exercise the remaining claim against the settling co-infringer. The last possibility may be expressly excluded under the terms of the consensual settlement (Art. 18).

11. CONSLUSION

The new Act on action on damages for the infringements of competition is seen as a mean to reduce the shortcomings of private enforcement and to promote the damage claims. Even before the Act, Croatia had full functioning damage actions provisions. Generally speaking, our rules are already very well aligned with the rules of the Directive. The problem is that in Croatia there is a shortage of commercial courts' jurisprudence on damage actions for infringement of the competition law provisions. A person that has suffered damage of infringement of competition law has two options. It can continue with follow-on actions or it can initiate stand-alone actions. Stand-alone action concerns the situation where an infringement is claimed independently of a competition authority's decision. Follow - on basis is a more convenient situation, where claim relies on a prior decision by a competition authority finding liability and the court does not have to struggle with founding a competition law infringement.

Beside the positive impact of the Act on future damage claims there are still a lot of questions that need to be clarified. Expected problems could be with the concept of objective liability that departs from our legal tradition. The Act does not contain rules dealing with the admissibility of economic evidence, causation and quantification of harm.

The issue of litigation costs is left to national procedural law. The Act left the question of collective redress mechanisms. It will be seen whether there will be increased litigation following the Act.

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ENTREPRENEURIAL ENVIRONMENTS IN INSTITUTIONAL TRANSITIONS

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ABSTRACT

International business, development economics, and strategic management research suggests that as economies transition from relationship-based markets to rule-based markets, entrepreneurs must adjust from network-based strategies to market-based strategies. In other words, as economic development increases, formal institutions become more prevalent than informal institutions. Utilizing this theoretical base, within this current paper, we suggest that the entrepreneurial environments within transition emerging economies foster entrepreneurial activity better than the environments of purely network-based economies with prevalent informal institutions and purely rule-based economies with strong formal institutions. Utilizing data from the Global Entrepreneurship and Development Institute, we utilize a quadratic curve estimation and a multiple regression analysis to provide empirical support for the premise that entrepreneurial environments are optimal in transition economies.

Keywords: *Emerging Economies, Entrepreneurial Environments, Institutional Theory, Institutional Transitions*

1. INTRODUCTION

A perspective of economic thought argues that entrepreneurship leads to innovation, increased productivity, and overall economic development (Holcombe, 1998; Hoselitz, 1952). This thought dates back to the mid-20th century when entrepreneurship clearly drove investment, innovation, and structural changes in countries (Leff, 1979). Entrepreneurship in this light was found to be the driver of job creation and development. As key a driver of economic growth as well as job and wealth creation, entrepreneurial activity is crucial to economies seeking to advance and develop, therefore understanding the environments in which entrepreneurs can thrive is important for economic growth (Malewicki, 2005). Within this current paper, we seek to bring a better understanding of such environments by applying the theoretical base of institutional transitions to the question of which institutional environments entrepreneurs thrive best in. Institutional theorists have long stated that the institutional environment within a country or market dictates the "rules of the game" in which organizations and entrepreneurs must operate (Mair and Marti, 2006). This view stems from sociological research which states that people and organizations exist in societal spheres of institutions that dictate behavior on what is acceptable and not acceptable within the institutional environment, otherwise referred to as the rules of the game (Scott, 1987). These rules of the game are found in both formal or regulatory-based institutions as well as more normative informal institutions (Webb, Tihanyi, Ireland, and Sirmon 2009). Formal institutions are formal rules such as intellectual property protection laws in an environment, while informal institutions are norms that exist outside of structured or officially sanctioned channels (Helmke and Levitsky, 2004). Institutional economics research finds that as economies develop and grow, informal institutions become less prevalent and are replaced by more regulatory formal institutions in the market (Peng, 2003). Therefore, as economies develop, they experience institutional transitions.

Institutional transitions are "fundamental and comprehensive changes introduced to the formal and informal rules of the game that affect organizations as players" (Peng, 2003, p. 275). We propose that as these transitions happen, the entrepreneurial institutional environment changes, which affect entrepreneurial activity, and therefore affects economic growth. Therefore, we seek to answer the following research question: how do institutional transitions influence the entrepreneurial institutional environment? To answer this question, the following sections review the literature on institutional transitions, adopt a theoretical stance, empirically test this stance, and discuss the implications of the results.

2. INSTITUTIONAL TRANSITIONS

In his impactful work, Peng (2003) proposes that as economies develop, the institutional environments of these developing economies transition from network or relationship-based environments to more formal and regulative rule-based environments. Network-based environments rely on informal institutional structures and relationships for transactions, but rule-based environments rely on formal structures for transactions (Peng, 2003). Also, Peng (2003) found that there are different costs and benefits that occur during different points of institutional transitions. When economies are at a purely network-based structure, the costs that firms face to survive are in building relationships; yet when economies are at a purely rule-based structure, the costs are in attaining and maintaining formal agreements within the market (Peng 2003). Organizations in network-based structures enjoy the benefits of informal relationships, and organizations in rule-based economies enjoy the benefits of formal structures. This theoretical base has been utilized to investigate international business topics such as business network structures (Ren, Au, and Birtch, 2009), CEO dualities (Peng, Zhang, and Li, 2007), corporate boards (Peng, 2004), firm diversification strategies (Lee, Peng, and Lee, 2008), network strategies (Peng and Zhou, 2005), and organizational relational exchanges (Zhou and Peng, 2010). Within this current paper, we examine entrepreneurial environments in institutional transitions. Employing institutional theory, we take on the perspective that the institutional environment influences the entrepreneurial activity within an area. This perspective has been supported heavily throughout the entrepreneurship literature (e.g. Levie, Autio, Acs, and Hart, 2014; Minniti, 2004). From this perspective, it can be stated that as economies experience institutional transitions, the change in the institutional environment affects the entrepreneurial activities within the transitioning economies. However, the question remains: which point of an institutional transition fosters the best environment for entrepreneurs? The following section adopts a theoretical stance to answer this question.

3. ENTREPRENEURIAL ENVIRONMENTS AND INSTITUTIONAL TRANSITIONS

As previously mentioned, the institutional environment is crucial to entrepreneurial activity, and network-based economies have drastically different institutional environments from rule-based economies (Minniti, 2004; Peng, 2003). Within network-based environments, entrepreneurs and organizations operate primarily on network and relationship-based transactions. As economies develop economically and experience the institutional transition to rule-based environments, network and relationship-based transactions become less prevalent and formal transactions become more common as firms compete with resources and capabilities (Lee et al. 2008). However, both types of environments hold important elements which contribute to entrepreneurial activity. In other words, there are elements within both types of institutional environments that contribute to positive entrepreneurial activity. First, in network-based environments, the institutional environment values informal institutions and relationship-based transactions. In fact, Peng (2003) proposes that during the early phases of institutional transitions when economies are the least developed economically, entrepreneurial start-ups and incumbent firms are likely to compete primarily on the basis of networks and relationships

along with their resources and capabilities. This is important for entrepreneurial activity because the existence of entrepreneurial networks drives entrepreneurial activity in a region (Malewicki ,2005). These networks allow entrepreneurs to efficiently expand the scope of their information gathering efforts (Thorelli, 1986). Furthermore, networks have been found to aid entrepreneurs in research acquisition (Acs and Gifford 1996; Aldrich and Zimmer, 1986; Larson, 1992). Finally, networks have also been found to be a source of innovation and facilitates opportunity recognition (Malewicki, 2005). Therefore, it can be stated that network-based institutional environments hold some value to entrepreneurial activity since relationship-based business networks foster entrepreneurial innovation, facilitates opportunities, and aid in research acquisition. The main premise here is that entrepreneurs benefit from networks within the environment, and this is therefore a benefit of entrepreneurial activity in network-based institutional environments. Second, in rule-based environments, the institutional environment includes strong formal institutions and rule-based transactions. Many researchers have found that entrepreneurship is actually a key strategic tool to enhance economic development within countries (Toma, Grigore, and Marinescu, 2014). However, within this paper, we also argue that there are elements of the rule-based institutional environment that positively influence entrepreneurial activity. Specifically, we propose that the presence of formal institutions decrease uncertainty for entrepreneurs. One of the major impediments for incumbent firms and entrepreneurs is handling uncertainty (Petrakis and Konstantakopoulou, 2015). Uncertainty impedes entrepreneurial activity, and formal institutions minimize uncertainty. For example, research finds that intellectual property protection is stronger in more developed economies where formal institutions are more prevalent (Gould and Grouben, 1996). Thus, entrepreneurs can enjoy less uncertainty in these markets since their patents, copyrights, and trademarks will be better protected in these institutional environments. With this stated, since formal institutions are more prevalent in rule-based institutional environments, we propose that this is a strength within these environments which fosters positive entrepreneurial activity. Rule-based institutional environments therefore provide certainty for entrepreneurs that network-based environments do not. Although we have highlighted benefits for entrepreneurial activity in both network-based and rule-based environments, it is important to state that entrepreneurial activity is not optimal in neither type of environments. First, although the institutional environment in purely network-based economies provides important relationship-based networks, the deficiencies of the formal environment impede opportunities and provides uncertainty for entrepreneurs. For example, a lack of formal institutions may provide a threat to intellectual property infringement and create uncertainty for incumbent firms and entrepreneurs. In other words, in underdeveloped countries, entrepreneurship cannot thrive because of obstructed and incomplete economic systems and deficiencies of organized structures (Leff, 1979). Similarly, we also propose that in purely rule-based environments, the environment is not optimal for entrepreneurial activity. As previously mentioned, networks are important to entrepreneurial activity because they provide entrepreneurs with opportunities to gather information, research acquisition, and the facilitation of innovation (Aldrich and Zimmer, 1986; Larson, 1992; Malewicki, 2005; Thorelli, 1986). In other words, although business networks may exist in rule-based environments, transactions are handled with market-based rules, which may not foster the innovative environment that entrepreneurs may thrive off of. Thus, since neither rule-based nor network-based institutional environments are optimal for entrepreneurial activity, we propose that transition economies offer the optimal environments for entrepreneurs and incumbent firms. Peng (2003) proposes the dynamics of transition economies in terms of the institutional environments. This idea stems from understanding emerging economies, or low-income economies that are experiencing rapid growth due to economic liberalization (Hoskisson, Eden, Lau, and Wright, 2000). Transition economies are a subset of emerging economies which are transitioning from network-based economies to rule-

based economies, and are experiencing institutional transitions (Peng, 2003). We propose that entrepreneurial activity is optimal in these economies because they offer both the relationship network-based benefits, as well as some benefits of formal or rule-based economies. In other words, we propose that since transition economies hold elements of both network-based institutional environments and market-based environments, these economies foster the best institutional environments for entrepreneurs. Therefore, we formally propose that there is a curvilinear relationship between economic development and optimal entrepreneurial environments. The logic here is that at the extreme ends of economic development, entrepreneurs may not thrive well, however, in transition economies, the environments may hold elements which optimally foster entrepreneurial activity.

4. METHODS

4.1. Measures for variables

In order to empirically test the curvilinear relationship between economic development and optimal entrepreneurial environments, data was collected at the country level of analysis. Data was collected for a dependent variable, an independent variable, and several control variables. The dependent variable is optimal entrepreneurial environments. To measure this variable, we collected data from the Global Entrepreneurship and Development Institute (GEDI). GEDI publishes annual data on countries with the best entrepreneurial environments, or entrepreneurship "ecosystems" by assigning each country as score for each country. This score is based on a mix of attitudes, resources, and infrastructure within the country, which contributes the entrepreneurship "ecosystem". The GEDI uses a methodology that incorporates entrepreneurial attitudes, along with social and economic infrastructures to measure the health of the entrepreneurship ecosystem (GEDI, 2017). Since this data measures both informal institutions such as social attitudes as well as more formal institutions such as economic infrastructures, this data would be appropriate to represent the dependent variable. Data from GEDI's 2014 report was utilized for this study to measure the dependent variable. The independent variable is economic development, which was measured with GDP per capita from the CIA world Factbook (CIA, 2014). GDP per capita for 2014 was utilized since the GEDI score for 2014 was collected. Along with the dependent and independent variables, several control variables were also measured and collected. First, scholars have found that the cultural environment may also influence the entrepreneurial activity within a country (e.g. Hayton, George, and Zahra, 2002). Therefore, we collected data on the cultures of each country in the dataset. Specifically, we utilized Hofstede's cultural dimensions (Individualism, Masculinity, Power Distance, and Uncertainty Avoidance) to measure the cultural environment of each country. Finally, we included the World Bank's "Ease of Doing Business" score for each country as another control variable because some countries may have better entrepreneurial environments than others based on the ease of doing business. The 2014 GEDI reported scores for 121 countries. However, not all of these countries had statistics for Hofstede's dimensions. Since culture should be included as a control variable, the countries without the scores for Hofstede's dimensions were deleted from the dataset. This left the data with 87 usable observations. Within this dataset, GDP per capita for the countries ranged from $354.70 to $97,005.50, with a mean of $20,602.45 and a standard deviation of $21,699.25. The GEDI scores ranged from 13.80 to 82.50, with a mean of 42.99 and a standard deviation of 16.83. Therefore this dataset has a mix of economies representing all types of institutional environments.

4.2. Analyses and results

Before the proposition that there is a curvilinear relationship between economic development and the entrepreneurial environment was tested, the variable correlations were examined for discriminant validity. Table 1 displays the correlations, means, and standard deviations for each construct.

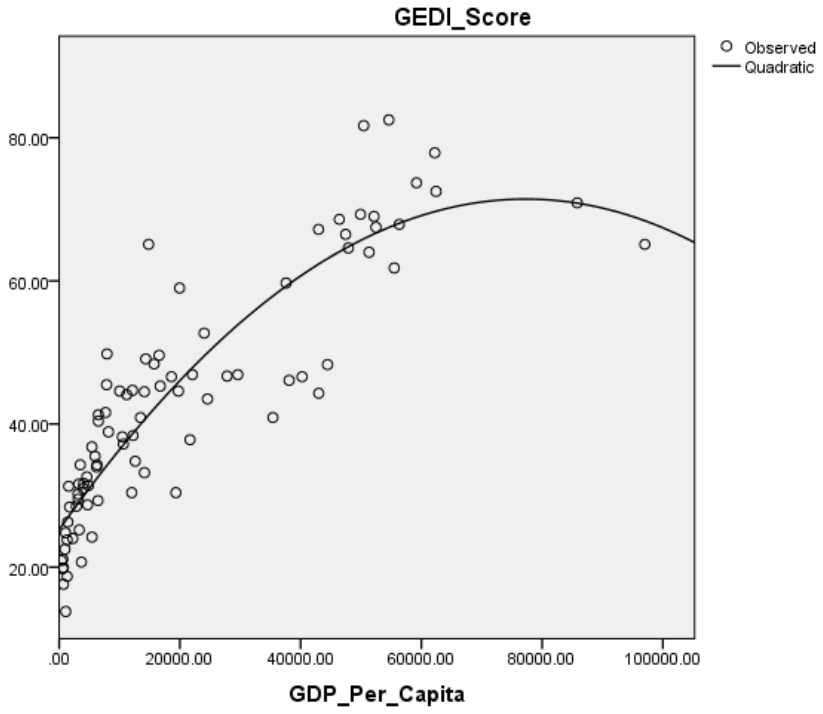
Table 1: Construct Correlations, Means, and Standard Deviations

	1	2	3	4	5	6	7
1. GDP Per Capita	-						
2. GEDI Score	.86***	-					
Control Variables							
3. Ease of Doing Business	.71***	.82***	-				
4. Individualism	.67***	.74***	.53***	-			
5. Masculinity	-.09	-.10	-.06	.06	-		
6. Power Distance	-.60***	-.60***	-.45***	-.67***	.14	-	
7. Uncertainty Avoidance	-.17	-.11	-.02	-.18	-.05	.21	-
Mean	20602.45	42.99	117.21	39.26	47.93	63.18	64.98
Standard Deviation	21699.25	16.82	49.38	22.46	18.86	20.9	21.41

*p < .05, **p<.01, ***p<.001

In order to test the proposed curvilinear relationship, a curve estimation was conducted in SPSS 21 with the GEDI score as the dependent variable and GDP per capita as the independent variable. The results provide support for the proposition that there is a curvilinear relationship between economic development and optimal entrepreneurial environments. Specifically, the quadratic term for GDP per capita was found to be significant and explained 79% of the variance (R Squared= .79, F (2, 84) = 167.32, p<.001). Figure 1 displays the curvilinear relationship.

Figure 1: Results of the Curve Estimation



Although the results of the curve estimation analysis displayed in Figure 1 provides support for the proposition of this paper, it does not take into account that culture or the ease of doing business in an environment may influence entrepreneurial activity. Therefore, we utilized a hierarchical multiple regression analysis in SPSS 21 to include the control variables, which are Hofstede's cultural dimensions and the World Bank's ease of doing business score for each country. A quadratic term for GDP per capita was calculated and utilized as the independent variable. Results of the hierarchical multiple regression analysis provided support for the quadratic effect of economic development on the GEDI score. In Model 1, when only the control variables were included, the results indicated that the control variables explained 81% of the variance (R Squared= .81, F (5, 81) = 67.10, p<.001). Ease of doing business (β = .57, p<.001) and individualism (β = .38, p<.001) were found to significantly predict GEDI score. In Model 2, when the independent variable, the quadratic term for GDP per capita was introduced, the percent of variance explained improved to 83% (R Squared= .83, F (1, 80) = 12.97, p<.001). In this model, the quadratic term for GDP per capita was found to significantly influence the GEDI score (β = .23, p<.001). Similar to Model 1, both ease of doing business (β = .50, p<.001) and individualism (β = .32, p<.001) were again found to significantly predict GEDI score. These results support the proposition that there is a curvilinear relationship between economic development (GDP per capita) and the optimal entrepreneurial environment. Table 2 displays the multiple regression results.

Table 2: Results of Multiple Regression with GEDI score as the Dependent Variable

	Model 1		**Model 2**	
Variable	**β**	**Standard Error**	**β**	**Standard Error**
Control Variables				
Ease of Doing Business	.57***	.02	.50***	.02
Individualism	.38***	.05	.32***	.05
Masculinity	-.08	.05	-.06	.04
Power Distance	-.07	.06	-.03	.05
Uncertainty Avoidance	-.03	.04	.01	.04
Independent Variable				
GDP Per Capita (Quadratic)	-	-	.23***	.00
R Squared	.81		.83	
F for R Squared Change	67.10***		12.97***	

*p < .05, **p<.01, ***p<.001

The results of the analyses provide support for the proposed quadratic or curvilinear relationship between economic development and the optimal entrepreneurial environment. Specifically, the results of the analyses show support that countries experiencing institutional transitions have environments that are more optimal for entrepreneurship than the most economically developed countries or the least economically developed countries. These results provide implications for firms, entrepreneurs, and governments, as discussed below.

5. DISCUSSION

5.1. Implications for government leaders

It is well-established in literature that entrepreneurship leads to innovation, which leads to economic growth (Holcombe 1998). Therefore, government leaders seeking to create an environment that fosters economic growth should understand the best environments to increase entrepreneurial activity within their economies. In this current paper, we provide implications for these leaders by providing evidence for an institutional environment in which entrepreneurship thrives. Specifically, we theoretically and empirically find that the elements of economies which hold both network-based relationships and rule-based formal institutions best foster entrepreneurial activity. This implies that government leaders seeking to enhance entrepreneurship in their countries should support policies and initiatives that enhance relationship and network-building, but also ensure that their formal institutions are relevant.

5.2. Implications for entrepreneurs

The results of this research hold implications for entrepreneurs in different types of institutional environments. First, entrepreneurs in purely network-based institutional environments should understand that their environment may have the strengths of relationship-based transactions, which, entrepreneurs need, yet the environment may not hold the formal economic structures needed for a thriving entrepreneurial environment. Second, entrepreneurs in purely rule-based institutional environments should understand that although their environments have strong formal institutions that may decrease uncertainty, the environments they exist in may not foster networks that entrepreneurs may need to foster innovation. Furthermore, within highly developed markets, firms compete with resources and capabilities, which may cause strong barriers to entry for small or entrepreneurial firms (Peng 2003). Finally, entrepreneurs in transition economies should understand that their environments hold elements of both network-based economies and some formal structures that reduce some uncertainty. These entrepreneurs are thus in optimal environments for entrepreneurial activity.

5.3. Implications for firms

Although the main purpose of this paper is to examine how economic development influences the entrepreneurial environment within each country, the results still provide implications for firms which exist in each type of environment. First, firms in network-based environments should understand that their environments include the benefits of relationship-based networks, which may provide opportunities to enhance firm innovation or intrapreneurship. This is important since intrapreneurship has been found to positively influence the performance of corporations as well as small and medium-sized enterprises (Antoncic and Hisrich 2001). However, firms in these environments should also understand that the lack of formal institutions may also impede innovations. Conversely, firms in purely rule-based environments should understand that their environments have strong formal institutions which provide strong intellectual property protection that is important to innovation (Lai 1998). Finally, firms in transition economies should understand that their environments have both some elements of relationship-based networks and some formal institutions, therefore may be the best environments to foster innovation and intrapreneurship.

5.4 Other implications

This paper provides evidence for the influence of economic development on entrepreneurial environments, however, implications may also be found in the effect of the control variables that were included in the multiple regression analysis on entrepreneurial environments. The results of the regression found that both individualism and the World Bank's ease of doing business score positively influence the entrepreneurial environment.

This implies that economic development may not be the only factor in fostering optimal environments for entrepreneurs, and other factors such as culture and the administrative environment also matter.

6. CONCLUSION

The topic of environmental influencers of entrepreneurial activity has long been examined, however, in this current paper, we examine this topic with respect to institutional transitions. Specifically, we examine how the optimal mix of formal and informal institutions can influence entrepreneurial activity. Results from the empirical analysis provided support for a curvilinear relationship between economic development and optimal entrepreneurial environments. This implies that transition economies with elements of both relationship-based structures and market-based formal structures actually may be best for entrepreneurial activity. Thus, it can be stated that entrepreneurs thrive in markets that have both elements of relationship-based environments and market-based environments. These results provide implications for government leaders, entrepreneurs, and incumbent firm, while contributing to the conversation on entrepreneurship and economic development.

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GLOBAL FINANCIAL CRISIS, EUROPEAN CENTRAL BANK AND FINANCIAL POSITION OF ECONOMIC AGENTS: A DYNAMIC COMPUTABLE GENERAL EQUILIBRIUM MODEL FOR ITALY

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ABSTRACT

This study examines a changing trend of consumption and investment of the economic agents, viz.: social class, government, firms and rest of the world, in the implementation of European Central Bank's Quantitative Ease (QE) policy. The study constructs a financial social accounting matrix (FSAM) for Italian economy for the year 2009. A dynamic computable general equilibrium model (DCGE) is calibrated on FSAM, using GAMS, to analyze the impact of money flow on the behavior of consumption and investments. The findings of the study confirm the positive impact of ECB's monetary policy on the level of investment and consumption.

Keywords: *Financial accounts, monetary policy, investment behavior, social accounting matrix, dynamic CGE analysis*

1. INTRODUCTION

The money I demand is Life, Your nervous force, your joy, your strife! (*Amy Lowell*[1])

Money plays a vital role in the function of economy since it perturbs or props up the whole income circular flow in the economy. Access to money, either easy or hard, can have a far reaching effect on investment and consumption behavior of the institutional sectors (Mian, Rao, and Sufi, 2013; Cesarini, Lindqvist, Ostling, and Wallace 2016; Steven, Burton and Emilio, 2016). This phenomenon can be explained from the cataclysmic events of the Great Depression 1929 and the Great Recession 2007 albeit there is still a lively debate on the factors that caused these events. One of the factors presented by Friedman and Schwartz (1963a,b) that lead to the Great Depression is the fall of money stock leading to a sharp decline in output prices in the economy. Similarly Bernanke, (1983) made a strong case that reduced money stock by banks and increased costs of borrowing and lending contributed to the nation's economic collapse. As the money stock fell, spending on goods and services declined, which ultimately instigated firms to cut prices and output to lay off workers. This led to the decline in incomes which made

[1] Sword Blades and Poppy Seed by Amy Lowell, pp. 13, Accessible Publishing Systems PTY, Ltd. CAN 085 119 953

it harder for borrowers to repay loans. A vicious circle was created wherein defaults and bankruptcies soared, banks failed, the money stock contracted further, and output, prices and employment continued to decline. A similar phenomenon is exhibited in the Great Recession 2007 which engulfed the global economies leaving them in a catastrophe. Another factor which is obvious in the context of Great Depression and Great Recession is the crash of stock markets. A question arises here as to how money flow in the economy affects the investment and consumption behavior of the economic agents. The answer to this question is that the banking systems and stock markets rely on the confidence of the economic agents, depositors and stock traders, and there is a widespread belief that the expectations of agents have strong linkage with economic fluctuations (Beaudry and Portier, 2014; Asker, Farre-Mensa and Ljungqvist, 2015; Cheng, Yan, Zhao and Gao, 2015). When the confidence of agents is shaken, perhaps due to the failure of large bank or large commercial firm, they rush to withdraw their deposits in a fear of losing their funds in a bank (Bloom, 2014). Similarly, in the situation of economic or financial distress, the expectations of economic agents are inclined to uncertainty which ultimately reduces their willingness to spend on consumption and to invest on financial markets (Hansen, Sargent and Tallarini, 1999; Ilut and Schneider, 2011; Hungonnier, Malamud and Morellec, 2015; Bateman, Stevens and Lai 2015).

1.1. Significance Statement

The recent global financial crisis, originated in 2007, has significantly hampered the global economies including many of the European countries. To this end, the European Central Bank (ECB) has come to act as a lender of last resort to prop up the faltered economies like Greece, Spain and Italy. Pursuing the Quantitative Ease (QE) policy, the ECB has decided to buy the government bonds in order to provide the financial stability to the economies. The governments are assumed to inject the money, collected from selling the bonds, to the system of economy to restore the balance. This expected flow of money into the system will ultimately stabilize the financial markets thereby restoring the confidence of the consumers and investors. The objective of this study, in this particular scenario, is to investigate the impact of ECB's QE policy on consumption and investment of the economic agents. To this end, the study constructs a financial Social Accounting Matrix (FSAM) for the Italian economy for the year 2009. A Dynamic Computable General Equilibrium Model (DCGE), using GAMS software, is calibrated to analyze the impact of the ECB's policy of money injection on the expenditures as well as on the real and financial investments of the economic agents. This study explains how investment and consumption behavior of economic agents is influenced in the financial distress/expansion. The next section describes the method which incorporates development of FSAM and dynamic general equilibrium model. The following section depicts the policy implication for Italian economy and presents the results and discussion. Finally section four concludes.

2. METHOD

This study constructs a social accounting matrix (SAM) for Italy which serves as the database for calibration of dynamic CGE model.

2.1. Social Accounting Matrix and Financial Accounts

Social accounting matrix describes the income circular flow of the economy for a particular year (Ciaschini and Socci 2006). It presents real[2] economic transactions among the economic agents namely; government, social class[3], firms and rest of the world. The insertion of financial accounts in a SAM presents two additional blocks: the block of capital accounts on one hand,

[2] The term real refers to non-financial

[3] Social class is replaced with households in the subsequent text

and the block of financial assets (or liabilities) accounts, on the other hand (Emini and Fofack 2002). The financial account presents a final account in the full sequence of real accounts in SAM. Net saving of an institutional sector is a balance of incomes and expenditures and together with net capital transfers (receivable/payables), it is used to accrue the non-financial (United Nations 2008). The resulting surplus/deficit is the net lending/borrowing and is the balancing item to move forward from the capital accounts to the financial accounts. On the contrary, the financial accounts have no balancing item that is carried forward to other accounts. Table A1 presents the basic framework of SAM complemented with financial accounts to make a financial SAM. Table A1 depicts the blocks of real and financial flows. The financial flows are represented by the financial instruments, row 7 and column 7, which are exchanged between Institutional Sectors. By row we can find the financial flows of assets and by column we read the flows of financial liabilities. The institutions incur and acquire from other institutions the financial liabilities and assets respectively. Since a liability automatically creates a corresponding asset, they must be balanced in aggregate (Greenfiled 1985, Roe 1985). Data for financial SAM have been collected from the Italian statistical department (ISTAT),Eurostat and published accounts of Bank of Italy for the year 2009. The detailed income circular flow is obtained by the disaggregation of commodities, production activities, primary factors and institutional sectors according to socio-economic criteria which is fundamental in order to obtain a complete SAM (Round 1985). The current financial SAM consists of the following:

i. 64 commodities,
ii. 64 activities,
iii. 4 primary factors,
iv. 4 current accounts for institutional sectors,
v. 4 capital accounts for institutional sectors,
vi. 12 financial instruments

Table A1: Basic framework of financial social accounting matrix (fSAM)

	Commodities	**Industries**	**Primary Factors**	**Institutional Sectors**	**Capital Accounts by Institutional Sectors**	**Financial Instruments**
Commodities		Inermediate consumption (use table)		Consumption	Investments	
Industries	Make table					
Primary Factors		Value added				
Institutional Sectors			Primary income distribution	Secondary income distribution		
Capital Accounts by Institutional Sectors				Savings	Capital transfers among institutional Sectors	Liabilities
Financial Instruments					Assets	

2.2. Financial CGE Model

The current CGE model follows the structure of FSAM. Hence there are four representative agents: firms, households, government and rest of the world. Primary factors constitute of compensation of employees, mixed income, gross operating surplus and other taxes less subsidies. Each sector employs a constant elasticity of substitution (CES) function in the value added whereas the demand for intermediate inputs follows the Leontief's linear activity system. Production is distributed between domestic supplies and exports through a constant elasticity of transformation (CET) technology. Domestic supply for each product constitutes of CES aggregation of domestic purchases and imports following Armington hypothesis. Whereas, the final demand for each product comes from households, government, rest of the world and investment. Linear expenditure system (LES) determines the consumption of households and government with constant fraction of agent's disposable income allocated to each commodity. The interaction between real and financial sides of the economy is fundamental to current analysis. The domestic market is modeled as an intermediation fund that borrows/lends resources from/to other agents. The supply of foreign capital here is represented as the model of the financial decisions of foreign agents. The lending/borrowing decision of the agents depends on its current deficit/surplus situation and other factors like the rate of return on investments, the interest rate, the risk on investments, and the degree of risk aversion of the agent (Maldonado et. al., 2008). The specifications of CGE model can be provided on request as supplementary material.

3. POLICY IMPLICATION FOR THE ITALIAN ECONOMY

As a regulator of monetary policy, the European Central Bank's (ECB) main responsibility is to keep the inflation rate low. However, in September 2012, the ECB committed itself to act as a lender of last resort and decided to buy the bonds of debt-ridden countries. Despite the fact that several criticisms have been received from all around regarding the proposed policy, the ECB has committed to take up the said policy.

3.1. Policy Scenario – results and discussion

In our simulation, we suppose the system receives an increase in money as a consequence of an increase in the demand of bonds in the assets of Central Bank. The effects of the policy are measured as the change in institutional sectors' investment and consumption as well as in quantity and prices of financial commodities. To estimate these effects we injected 10 Billion Euro which has a quadruple effect on the FSAM. First, we increase the bonds in assets of central bank's block and these were compensated by decreasing the counter cell in government assets. On the other hand, the currency in government assets is increased and is compensated by decreasing the same amount of currency in the assets of central bank. The circulation of money from the selling and purchasing of bonds affects the whole income circular flow. Figure 1 presents the percentage change in the investments of the government, households and rest of the world from the benchmark. It is obvious from the figure that the investments of government and household are positive whereas the investments of rest of the world are negative. This implies that after the simulation, the investments of government and households have been increased continuously whereas the investments of the rest of the world have been declined. It is important to note that the investments here represent both the real and financial investments. Moreover, the figure shows that government investments are more than the households' investments. This is normal since the government is assumed to increase its expenditure after receiving money resulting from ECB's bond buying policy. Therefore, the jump of government investments is more significant as compared to households.

Figure 1. Percentage change in investments of institutional sectors from benchmark

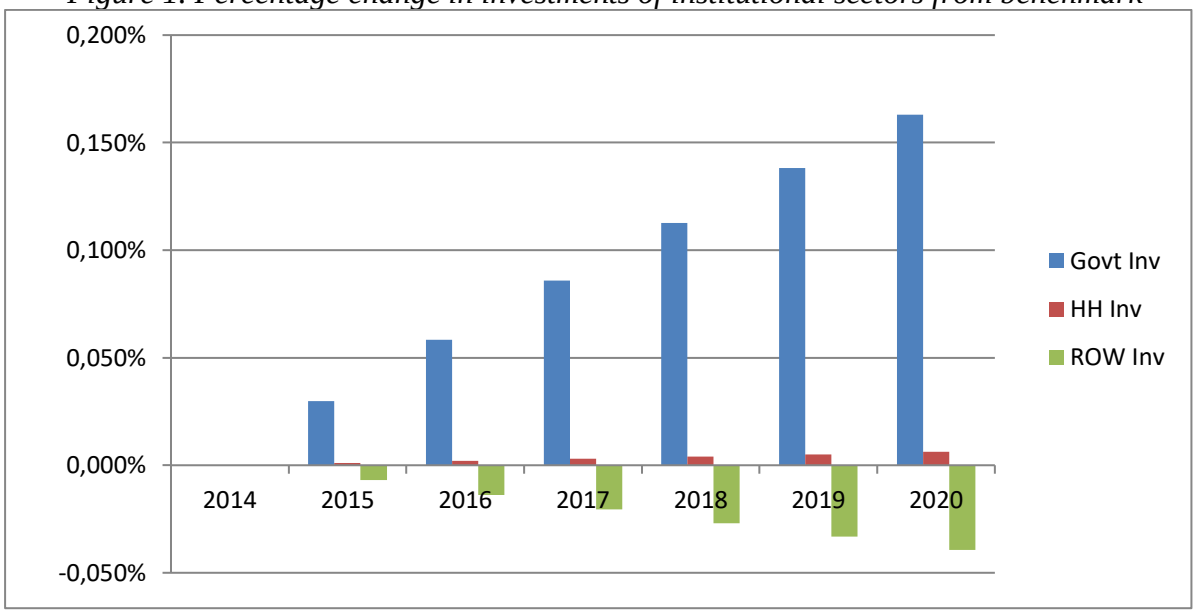

Figure 2 shows the percentage change in the consumption of government, households and rest of the world. It is obvious from the figure that the consumptions of all the institutional sectors are positive which confirm the increase in the consumption level after the simulation. Here, the consumption level of rest of the world is more than the other two agents. The government has the lowest level of consumption. It is imperative to note that the change in both the investment and consumption of the institutional sectors is very low. The change in investment lies between -0.5% to +0.2% whereas the change in consumption lies between +0% to +0.012%. This phenomenon may refer to the behavioral characteristics of the investors which can be endorsed by a study by Steven et. al., (2016) depicting that the behavior of investors to invest is positively correlated with capital shocks. They further confirmed that the capital shocks lead to the stochastic volatility in aggregate consumption and investment and direction of these effects is consistent with business cycle facts. Moreover, the current findings may also confirm the innate feature of human behavior which shows that the experience with finance impacts positively on the behavior of investments (Henrik and Stephan, 2014). The current findings are also consistent with numerous previous studies which confirmed that the investments of economic agents are prone to the change, either negative or positive, in financial markets (Asker et. al., 2015; Hugonnier et. al, 2015).

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Figure 2. Percentage change in consumption of institutional sectors from

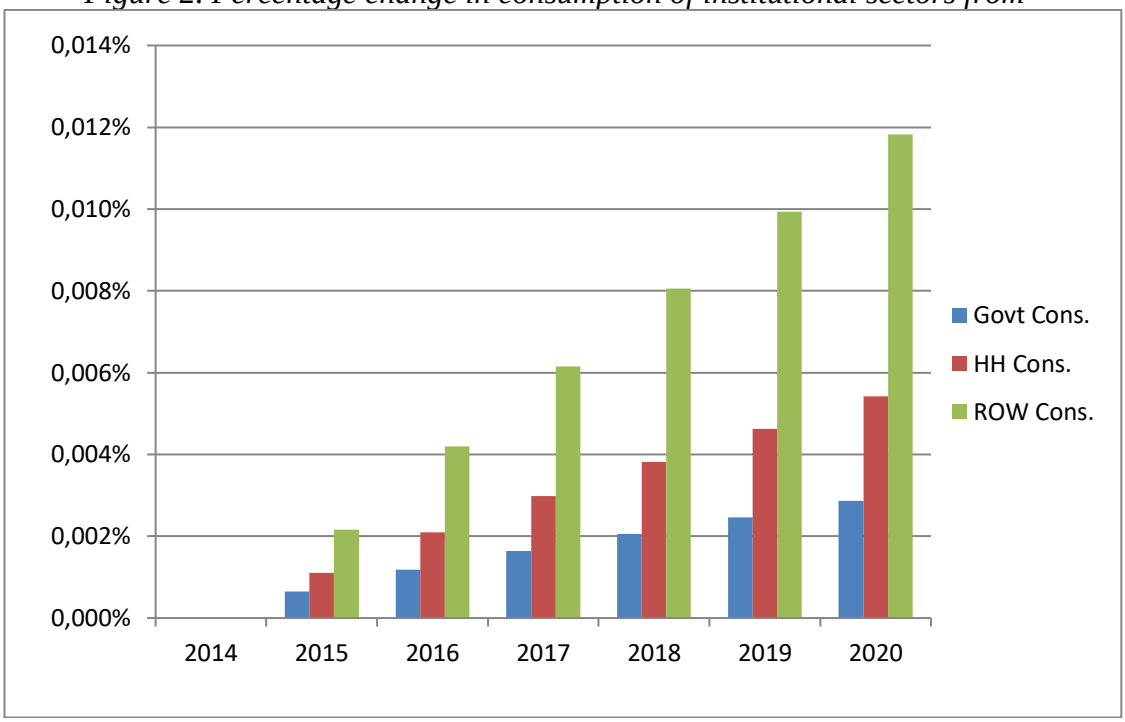

Figure 3 depicts the change in output of financial commodities from benchmark in the years from 2014 to 2020. The findings show that the injection of money into the economy has activated the financial market of Italy with few financial commodities undergoes positive effect while most of the financial commodities evidences a negative impact. The output of financial instrument 'Short-term securities, with general government' has been significantly increased from the benchmark after the policy simulation. It shows that there is an increase in the demand of short-term securities with general government from the investors. It further infers that the short-term investors gain more confidence on government securities after government has received money by selling government bonds. Similarly, the financial instruments 'bonds issued by central government' and 'bonds issued by residents' have also evidenced a positive impact. This finding shows that the QE policy of ECB has impacted not only money market but also the capital market of Italy. Money market here refers to short term trade of financial instruments, for instance; short-term securities, whereas capital market presents the trade of long term financial instruments, for instance; bonds. Most of the other financial instruments have undergone a negative impact which infers the decline in their demand.

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Figure 3. Percentage change in output of financial commodities from benchmark

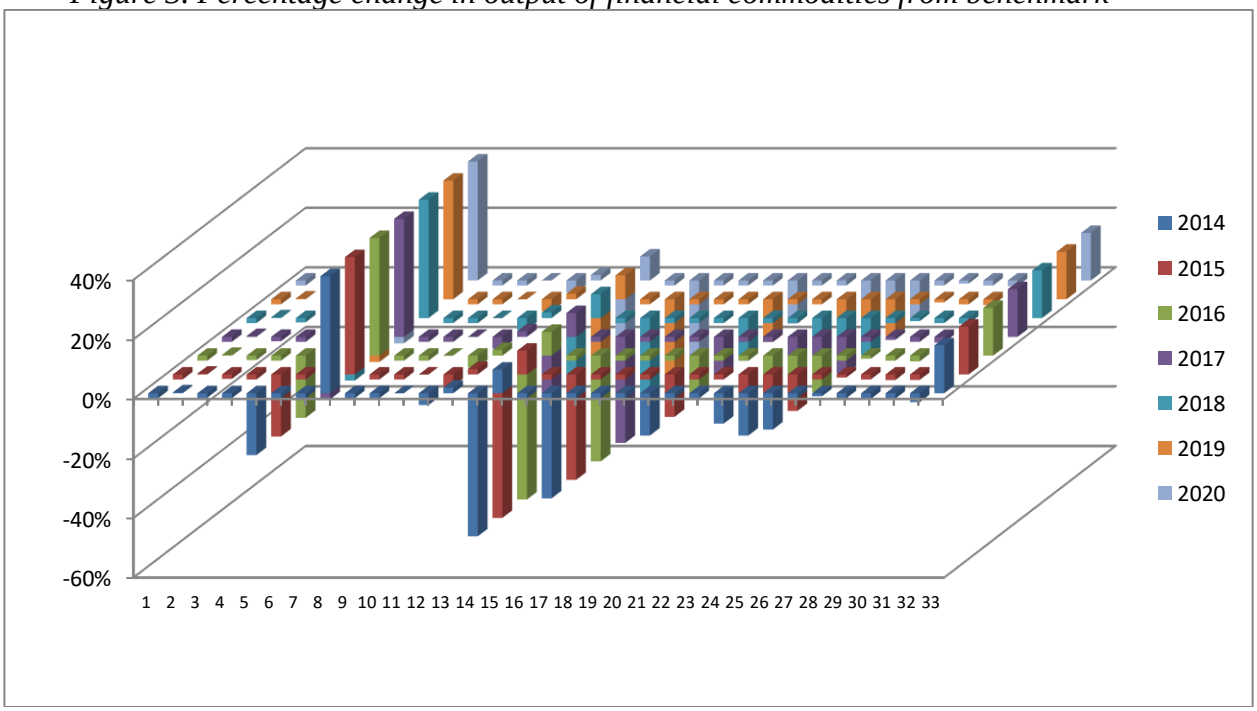

Figure 4. Percentage change in prices of financial commodities from benchmark

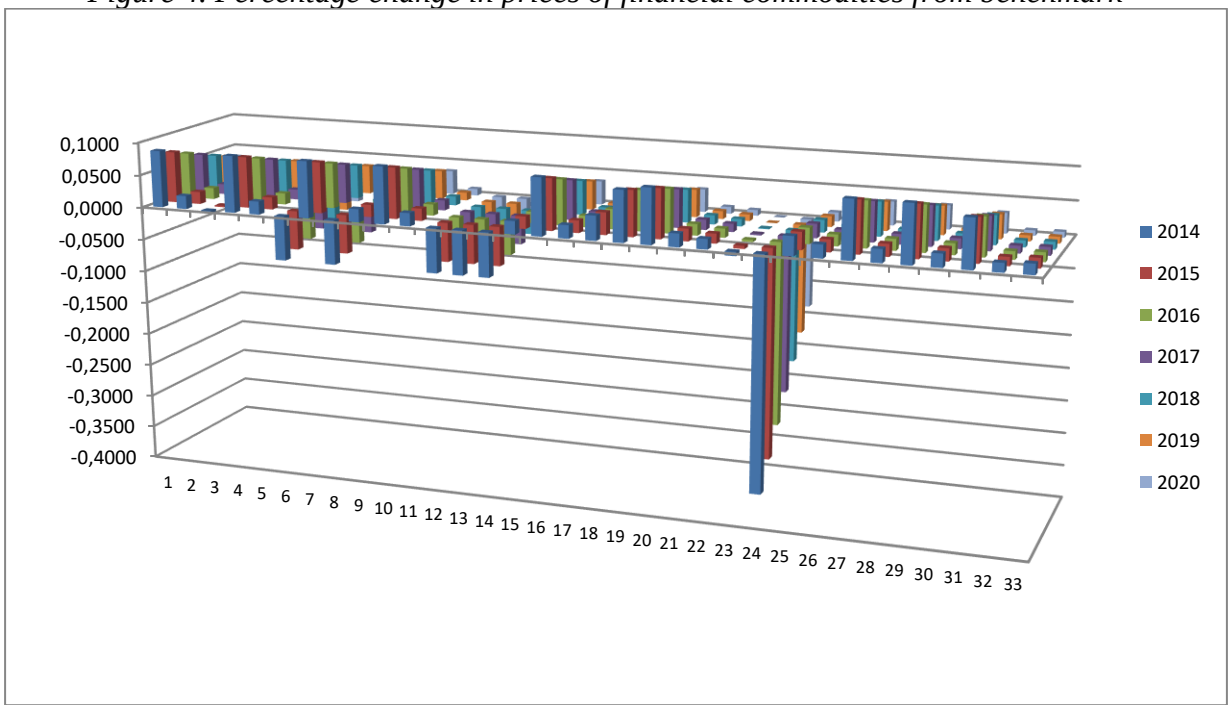

Figure 4 portrays the change in prices of financial instruments from the benchmark after the policy simulation. The findings show that, except few, all the financial commodities evidence a positive impact on prices. It seems inconsistent with the impact on output of the financial commodities. It is generally accepted phenomenon that the increase in final demand increases the prices of the commodities and vice versa. In this case, the effect on output of most of financial instruments is negative which infers the less demand of said instruments. Whereas, the impact on the prices of most of financial instruments is positive, this infers more demand.

4. CONCLUSION

This study aims at contributing to the extant literature in several ways. First, it develops the financial SAM for the Italian economy for the year 2009 which serves as the dataset showing the inter-relationship of real and financial economic variables. Second, the study has developed and calibrated the financial dynamic CGE model to investigate the impact of ECB's monetary policy on the investments and consumption of the economic agents. The findings of our study confirm the impact of ECB's monetary policy on the level of investment and consumption. However, the affect is not very large. A wide strand of literature has been devoted to the discussion of ECB's stance on government bond buying policy. However, this study is one of the first which empirically investigated the impact of ECB's proposed policy of Italian government bond purchasing in a dynamic and microfounded setup. The study concludes that the injection of money in the Italian economy through government bonds purchasing by ECB will have a positive effect in the economy.

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EMPIRICAL TESTS OF VARIOUS CYCLE EXTRACTION METHODS; GDP VS. INDUSTRIAL PRODUCTION IN CROATIA

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ABSTRACT

Business cycles at their peak can be harmful for the whole economy, yet producing negative growth rates at their bottom. Since there is no general agreement on the causes of business cycles, the most intriguing debates revolve around the question on how to measure these phenomena. A central part of the business cycle analysis is therefore, the extraction of the cycles. The goal of this paper is to empirically test various extraction methods as to find which variable is suited to be named a reference business cycle indicator in Croatia as well as to evaluate the quality and accuracy of these extraction methods. Namely, we focused on deviation cycle extraction methods and compared them with an alternative business cycle approach, the growth rates. It was found that no method yields perfect results, however, most of the extraction methods showed much agreement in confirming a GDP indicator as a credible variable in representing Croatian business cycle.

Keywords*: business cycles, deviation cycle analysis, cycle extraction methods, parametric and non-parametric methods, filters, Croatia*

1. INTRODUCTION

Business cycle analysis generated an important impulse in stimulating and provoking interesting academic and professional debates on economic perspectives. Measuring business cycles is critical in determining the stylised facts on the cyclical behaviour of aggregate macroeconomic indicators over time. Business cycle theory is a theory of boom and bust with special attention to the market forces that initiate the boom and the market's own self-correcting forces that turn boom into bust, and it is independent of the forces determining economic growth. As Plosser (1989) suggested well, when we think of business cycles we frequently think about the notions of persistence or serial correlation in economic aggregates, comovement between relevant economic activities, leading or lagging variables relative to output, and different amplitudes or volatilities of various economic series. Business cycles at their peak can be harmful for the whole economy, yet producing negative growth rates at their bottom. Economic fluctuations that yield cyclical behavior of the economy are in fact optimal responses to uncertainty in economic surroundings. Since there is no general agreement on the causes of business cycles, the most intriguing debates revolve around the question on how to measure these phenomena. A central part of the business cycle analysis is therefore, the extraction of the cycles (Škare and Stjepanović, 2015). The goal of this paper is to empirically test various extraction methods as to find which variable, particularly gross domestic output or industrial production, is suited to be named a reference business cycle indicator in Croatia as well as to evaluate the quality and accuracy of these extraction methods. Namely, by analyzing business

cycle aspects of the Croatian economy we are in fact addressing key macroeconomic issues that are or might be crucial for economic stability and growth perspective. Considering different roles of economic policies within decision-making opportunities, each economic problem should be approached differently depending upon the specific cycle characteristics of the country. For this purpose, we focused on deviation cycle extraction methods and compared them with an alternative business cycle representation, the growth rates. Results implied that no extraction method is perfect, however, most of the selected methods showed much agreement in confirming a gross domestic product measure as a credible variable in representing Croatian business cycle. Section 2 surveys the theoretical background and empirical literature. Section 3 gives a full perspective to the analytical part by describing used methodology and data, as well as it evaluates the results. Section 4 provides some concluding remarks.

2. THEORETICAL BACKGROUND AND THE EMPIRICS

This section presents a short introduction to the conceptual background of the topic with introspection into some practical issues, and in addition offers an empirical background on related studies.

2.1. Conceptual background of the topic

In this part we will present some intriguing information on the business cycle analysis positions. First, the common measure of economic growth and development perspective is gross domestic product (GDP), so most of the researches use GDP growth rates as the reference variable within the business cycle analysis. Alternative measures are industrial production, (un)employment or some kind of indicator that utilises a broad set of economic variables are also frequently used for identification of turning points (Škare and Tomić, 2015). For example, industrial production covers a part of aggregate economic activity, its performance follows postulates very similar to those of the GDP, which makes it a good indicator of the business cycle (Sala, Torres and Farré, 2014). Though GDP growth rates have many methodological drawbacks, however, the main advantage over other multivariate series is that it avoids uncertainty about the turning points in the business cycle (Bierbaumer-Polly 2010). Second, it is common to distinguish two types of business cycles. Classical cycles are identified as peaks and troughs in the cycle. Peaks are identified by being followed by absolute declines in output, troughs by absolute increases. Such cycles are, of course, comparatively rare in growth economies and to focus attention only on these would lead to a paucity of observations (Artis, 2004). Deviation cycles analysis is concerned with phases of above and below the trend of growth as this it is known also as a growth cycle approach. As classical cycles are comparatively rare, most of the studies are conducted using the deviations cycle approach. Some authors such as Ruth, Schouten and Wekker (2005), also point out the third approach, the so-called growth rate cycles which uses growth rates to extract shifts and identify important cycle facts. The last issue is related to the identification of cyclical movements (Škare and Tomić, 2015). For classical cycle approach, there exist a number of different dating procedures which can be classified as either belonging to the group of non-parametric (Bry and Boschan BB algorithm and similar algorithms) or parametric methods (for example Hamilton switching regime method). The main question within deviation cycle approach is how to decompose the trend and cycle component from real output. There are a number of parametric methods that are usually considered as best: state-space models with common factors models, unobserved component, state-dependent Markow-switching models, then Kalman filter, ARIMA with Beveridge-Nelson decomposition, etc. The production function approach of the OECD also belongs to the class of multivariate methods to estimate trend component of output and the output gap. There are also linear regression models. Non-parametric methods or 'ad hoc' filters, mostly band pass, are widely used in detrending procedures because though many of them have technical and methodological disadvantages

they are usually easy to perform. Here we find first-order differencing, Hodrick-Prescott filter, Baxter-King filter, Christiano-Fitzgerald filter, phase average trend method, etc. After a long period in which it was held that the correct method of detrending could not be decided upon and yet was critical in effect there seems now to be some convergence of opinion on the idea that a band pass filters is broadly optimal (Artis, 2004).

2.2. A short review of empirical literature

In the paper entitled 'The statistics Netherland's business cycle tracer; Methodological aspects; concept, cycle calculation and indicator selection', authors Ruth, Schouten and Wekker (2005), developed their cycle tracer that represents a business cycle indicator in the Netherlands. This cycle tracer showed the emergence of business cycles based on the study of lagged variables of leading economic indicators. In this paper, based on certain settings, the best method or filter for determining business cycles in the observed variables is selected. Very similar paper to this comes from the same author, Floris van Ruth (2010), entitled 'Cross-sectional approach to business cycle analysis'. The author of this paper suggested that it is possible to extract and prove the existence of business cycles through several small economic indicators.

Various methods such as Christiano-Fitzgerald filter, Hodrick-Prescott filter, Baxter-King filter, Beverige-Nelson decomposition and etc., are used for filtering the observed variables. Using comparisons of known filters and methods, Nilsson and Gyomai (2011) wrote a paper entitled 'Cycle Extraction'. In this paper, the authors focused on only two filters, the Hodrick-Prescott filter and the Christiano-Fitzgerald filter, and they tried to prove which is better at demonstrating the emergence of business cycles. The conclusion suggested that the Hodrick-Prescott filter is one with the highest quality and is the most robust in evaluation of business cycles. In the paper titled 'Extracting a robust U.S. business cycle using a time-varying multivariate model-based band pass filter', author Creal, Koopman and Zivot (2010), created their time-varying multivariate model with a band pass filter. In this way, the authors contributed to the development of new methods and filters for predicting the creation of business cycles.

In the article 'Dating the Euro Area Business cycle', Artis, Marcellino and Proietti (2003), apply a modified Hodrick-Prescott filter that contains Baxter-King filter features but avoids end-point problems and a production function-based approach. The work that has a similar theme and seeks out the advantages and disadvantages of certain filters and methods for displaying business cycles is work by Astolfi, Ladiray and Mazzi (2003), entitled 'Business cycle extraction of Euro-zone GDP: direct vs. indirect approach'. In this paper authors compared First difference filter, Henderson filter, Hodrick-Prescott filter and Baxter-King filter. In addition, the authors have concluded that the Hodrick-Prescott filter is the best for the given topic. Arturo Estrella (2007) in his work 'Extracting Business Cycle Fluctuations: What Does Time Series Filters Really Do?' explained the mathematical methods contained in each filter, or on which individual filters are based. Apart from works dealing with the comparison of various methods and filters for detecting business cycles based on the observation of important economic indicators, we also have papers that address only individual filters or methods. Döpke (1999) made rolling contemporaneous correlations based on a five year moving average for Hodrick-Prescott filter detrended data and suggested an increase in correlation between most of EU countries and the euro area. Similar conclusion came from Koopmans and Azavedo (2008) who used Christiano-Fitzgerald filter, next Darvas and Szapary (2004) who used Hodrick-Prescott filter and band pass filters, Altavilla (2004) who used Bry and Boschan and Harding-Pagan procedures, Hodrick-Prescott filter and band pass filters, as well as Markov switching model, etc.

Tomić and Demanuele (2017), by analyzing two measures of business cycle coherence based on Hodrick-Prescott filter (namely synchronicity and similarity), between Croatia and new EMU members, wanted to reconcile with vast empirical evidence supporting the hypothesis that monetary integration process results from a greater business cycle convergence and leads to an optimal currency area which finally leads to greater economic welfare in each of the member countries.

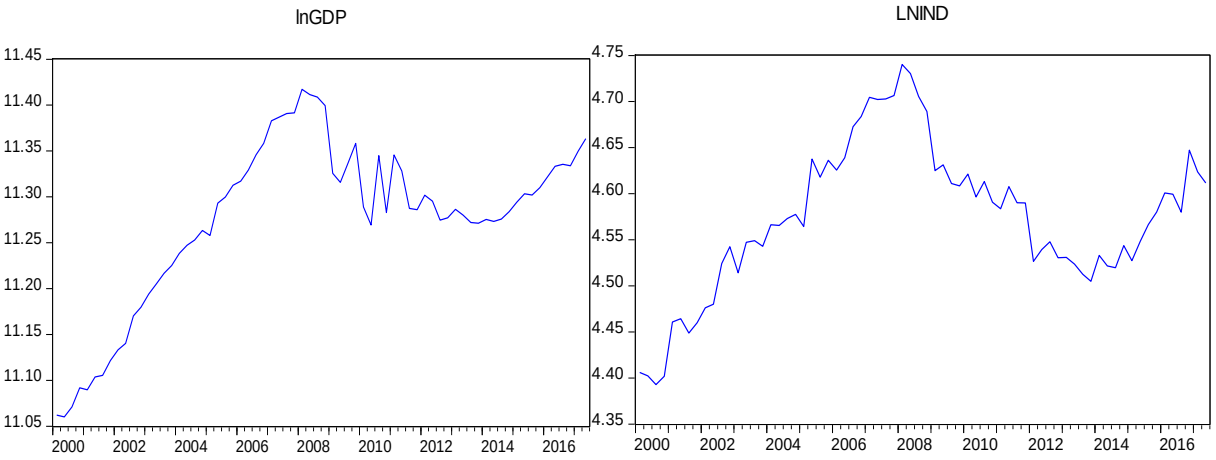
3. METHODOLOGICAL ISSUES AND THE RESULTS

This section consists of three parts; first we will clarify some methodological issues, then evaluate the data and used methods, and in the end interpret the results of the statistical analysis. Due to some advantages (offers an already established framework, easy to compare and combine, easy to interpret (Ruth, Schouten and Wekker, 2005)), the fact that many studies used it as it has proven itself in practice, and it is relatively easy to calculate, in our research we opted for the deviation cycle approach. Next, as we already mentioned, there are three variables mostly used in business cycle analyses for identification of turning points; GDP, industrial production and unemployment. Similarly to Krznar (2011) who observed GDP in identification of recession and expansion periods in Croatia, the importance of the industrial production in providing ground for decision-making bodies with early signals of turning points and/or long-term trend fluctuations, and the fact that the movement in (un)employment, is not closely related to the fluctuations in the Croatian GDP, we have chosen GDP and industrial production as our variables of interest. Indicator such as GDP has an enormous impact on policy goals and regulations, public and academic discourse as well the media since it is a powerful accountability mechanism (Boyd, 2009) that is objective, scientific and rule-driven, politically and institutionally independent and allows us to observe a complex economic system on an aggregate and disaggregate level. On the other hand, industrial production represents a significant portion of economic activity (despite the growing importance of the service sector, industrial production is still an important factor of Croatian economic performance and competitiveness), hence the dynamics of industrial output is closely related to overall output dynamics (Tomić and Stjepanović, 2017). Fluctuations in the industrial production index are often influenced by seasonal volatility, trend fluctuations and crisis appearances, as well as a calendar and trading day effects, which cover relevant short and long-term movements of time series.

3.1. Data

Quarterly data on real GDP (billion HRK, constant prices) and industrial production (basic index, 2010 = 100) are collected from the Croatian National Bank (HNB) for the period 2000:Q1 – 2017:Q2. First, all variables were seasonally adjusted using Census X13 seasonal adjustment procedure and then transformed in their logarithmic form in order to model continuous outcomes. Moreover, once we have the data in log, we can always start analyzing the time series from the point in time and not just from the $t = 0$, or from our perspective from t = 2000Q1. Therefore, we have a real national output as **lnGDP** and **lnIND** for the industrial production. Since all the variables have changed during the time (see *Figure 1*), we had to test them for the presence of a unit root. For this purpose, we used Augmented Dickey Fuller test, Phillips-Perron test and Kwiatkowski-Phillips-Schmidt-Shin test. Generally, all tests confirmed the presence of a unit root in the variables (results available upon request). Graphical displays of the observed variables also suggest that they are not stationary in levels. Based on the obtained results it can be concluded that all series are integrated of order I(1), i.e. they are stationary in their first differences. This assumption enabled us to consider some methods, such as ARIMA modelling, in the estimation process.

Figure 1. Real GDP and industrial production



Source: Authors' calculation based on the data from the HNB.

3.2. Methodology

In the analytical part, we focused on deviation cycle extraction methods and compared them with an alternative cycle representation, the growth rates. In addition, we calculated standard deviations in order to evaluate the variability among different methods of estimation.

Table 1. Various methods of cycle extraction used in the analysis

lnGDP_2qMA / lnIND_2qMA	2 quarters moving average of growth rates
HP_1600	Hodrick-Prescott filter (λ = 1600)
LOG_TREND	Constant logarithmic trend
DF_1	First order differencing
EXP_SMOOTH	Simple exponential smoothing
BK	Baxter-King filter (lags/leads *y*)
CF	Christiano-Fitzgerald filter (lags/leads *y*)
MS	Markow-switching model (*x* regimes)
BUTTERWORTH	Butterworth filter
POLY_TREND	Polynomial trend
BN	Beveridge-Nelson (*p,d,q*) decomposition
ARIMA	ARIMA (*p,d,q*) process

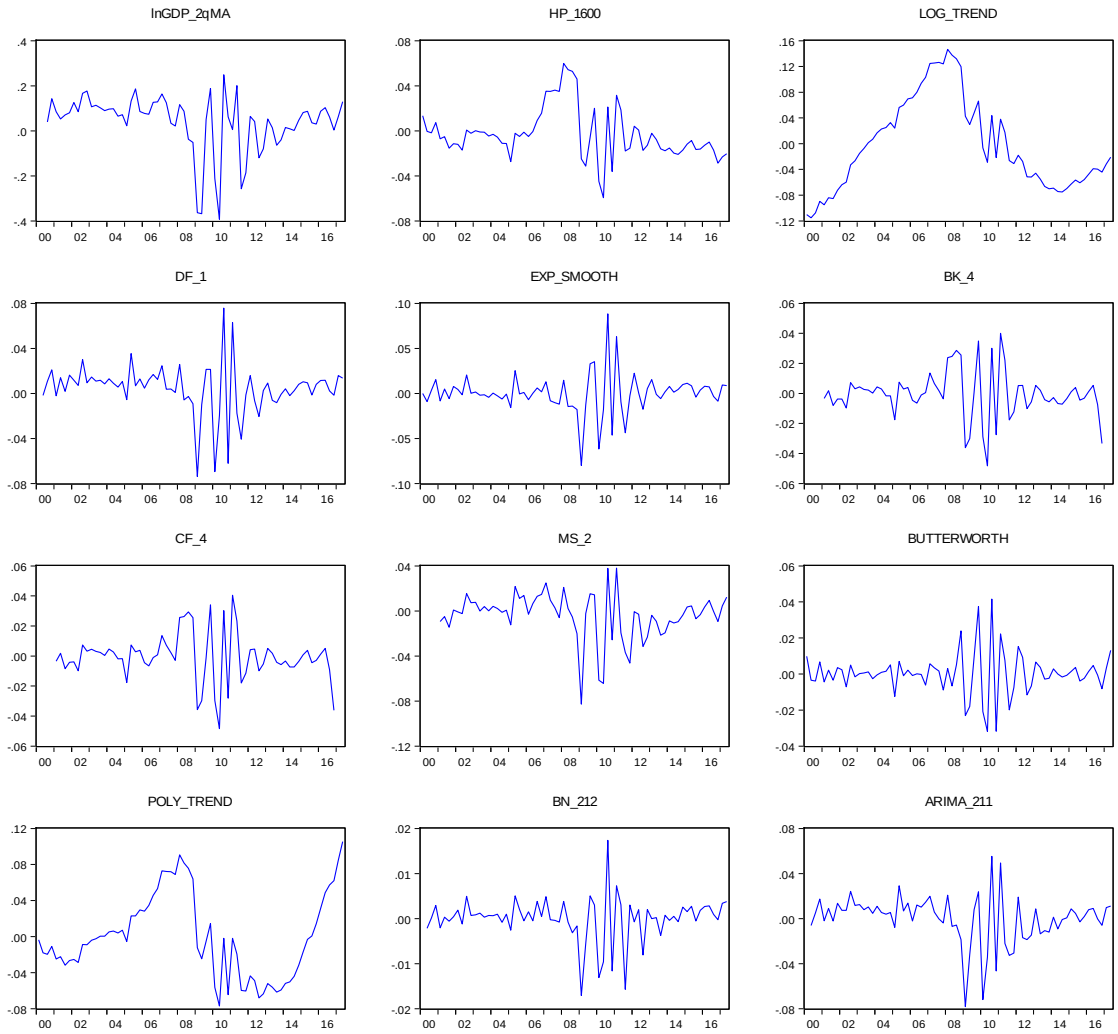
Since, some of the cycle extraction methods can yield so-called spurious cycles, or they can filter out information that are not related to the cycle development, some exhibit the end-value problem, and etc., we opted to apply as many as possible concepts of extraction to assess the cyclicality of the Croatian GDP and industrial production (see *Table 1*). Individual results and related explanations by each method are available upon request.

3.3. The results

The business cycles found by the various methods for real GDP and industrial production in Croatia are depicted below. Their dynamics should reveal us the extent to which the cycles are similar and in which part they differ. When we observe real GDP (*Figure 1*) we can notice that most of the methods yield cyclical behaviour of very similar shape and dynamics, except for a constant logarithmic trend and polynomial trend, however even these two methods depict stronger amplitudes alike other methods (for example the peak). In explanation, all methods

isolate important turning points as trough somewhere in 2009 which is related to world economic crisis, but only Hodrick-Prescott filter reveals the peak that happened at some point in 2007. In general, all the methods reveal strong cycles, but not those weaker ones. Additionally, when we analyze correlations between real GDP cycles we find overall cohesion and similarity (*see Appendix*).

Figure 1. Cycles for the real GDP in Croatia

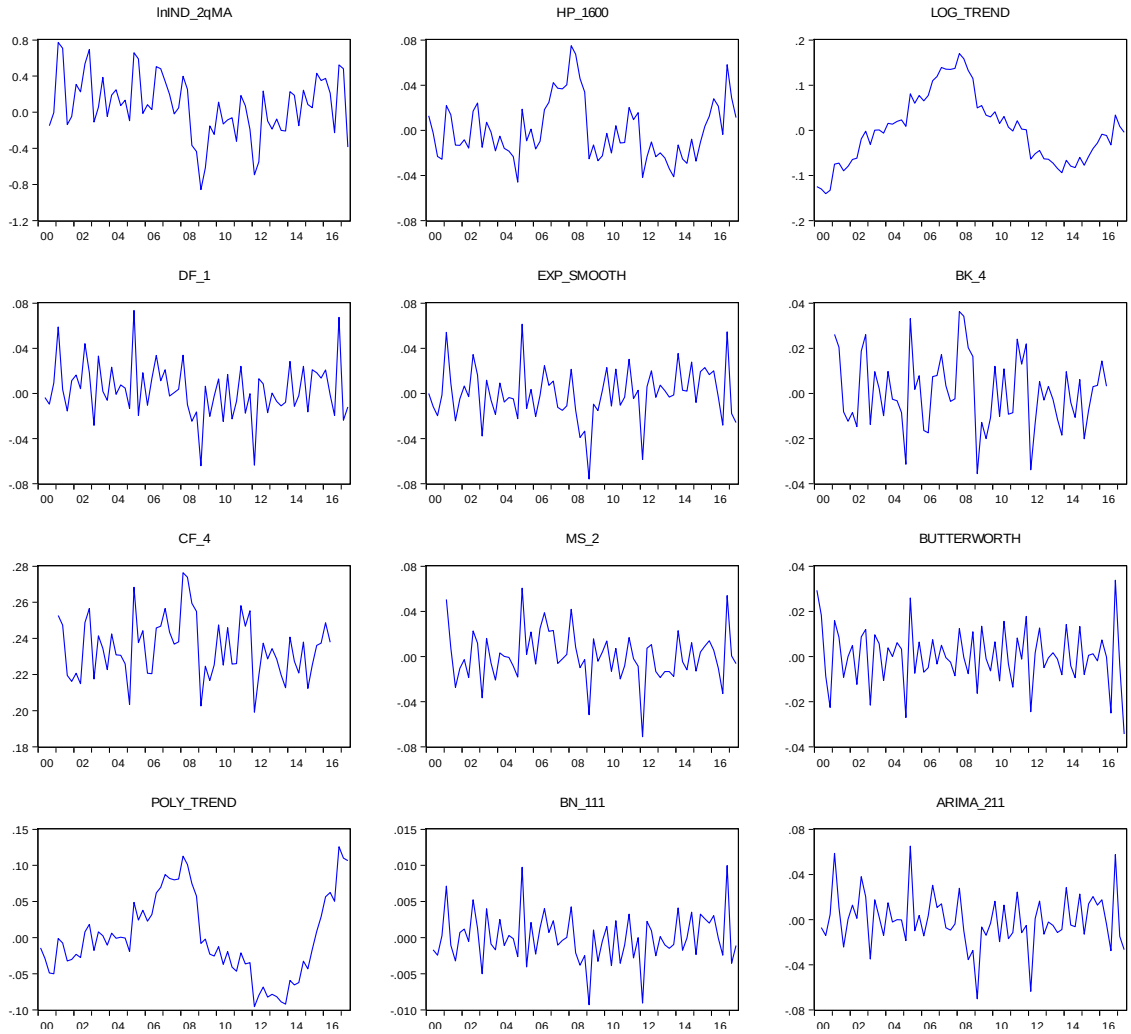


Source: Authors' calculation based on the data from the HNB (EViews 9.5 and Gretl).

When we observe industrial production (*Figure 2*) we detect cycles that differ greatly across various methods, i.e. we see clear differences in amplitudes and periodicity at various moments of time. Most of the methods depict a number of turning points without distinguishing stronger and weaker cycles. Again, the most consistent method in revealing cyclically relevant point is Hodrick-Prescott filter. Since we have found cycles that are more volatile in comparison to the real GDP cycles, correlation coefficients between the industrial production cycles tend to be weaker (*see Appendix*).

Figure following on the next page

Figure 2. Cycles for the industrial production in Croatia



Source: Authors' calculation based on the data from the HNB (EViews 9.5 and Gretl).

In order to find out which variable is more suited to be a reference variable within business cycle analysis for Croatia, we also calculated standard deviations for all the methods of extraction (see *Table 2*). In general, we find that all methods used for extracting cycles from the industrial production variables are more volatile in comparison to similar methods used for the real GDP variable. The more volatile nature of the industrial production clearly brings out the difference between the extraction methods and in comparison to the real GDP. Though, it is important for any business cycle analysis to be able to detect turning points, i.e. peaks and/or troughs in the cycle, it is also important that it reveals important points in time, and not every fluctuation, therefore the variable industrial production certainly is not a good candidate for studying business cycles in Croatia. It seems that industrial production is more volatile and cyclical that the Croatian economy as a whole.

Table following on the next page

Table 2. Standard deviations across different methods of extraction

Methods of extraction	**lnGPD** *st.dev.*	**Methods of extraction**	**lnIND** *st.dev.*
lnGDP_2qMA	0.126635	lnIND_2qMA	0.340462
HP_1600	0.022583	HP_1600	0.026212
LOG_TREND	0.070525	LOG_TREND	0.076420
DF_1	0.022518	DF_1	0.024146
EXP_SMOOTH	0.022282	EXP_SMOOTH	0.023448
BK_4	0.015975	BK_4	0.016197
CF_4	0.016234	CF_4	0.016853
MS_2	0.020969	MS_2	0.022306
BUTTERWORTH	0.011913	BUTTERWORTH	0.012821
POLY_TREND	0.045848	POLY_TREND	0.055870
BN_212	0.004982	BN_111	0.003414
ARIMA_211	0.021521	ARIMA_211	0.023362

Source: Authors' calculation based on the data from the HNB (EViews 9.5 and Gretl).

In overall, the cycles estimated by various methods present rather similar results, especially for the real GDP variable, but also for the larger cyclical movements in the variable industrial production. We analyzed properties of all the extraction methods with correlation coefficients in $t = 0$ and come to conclusion of overall similarities. Broadly speaking, we found substantial similarity across the cycles, however, some of the methods yielded better results in the terms of smaller volatility and of dating important turning points such as Hodrick-Prescott filter, simple exponential smoothing, Christiano-Fitzgerald filter and Markow-switching model. Medium quality results came from the quarterly growth rates, first order differencing, Baxter-King filter, Beveridge-Nelson decomposition and ARIMA modelling. Most of these methods yielded cycles that are absent and/or unimportant in other methods. The worst results came from the constant logarithmic trend approach, Butterworth filter and polynomial trend approach. For industrial production, the distinction between different points of fluctuation is somewhat arbitrary, there are some erratic movements in the cycles across the methods of extraction, correlations between the different cycles is generally lower than in the case of the real GDP variable and etc., all of which brought us to the verdict that real GDP variable is the best candidate for observing business cycles in Croatia (unemployment being the less volatile and somewhat rigid variable in some terms not even correlated to the real output movements in Croatia as stated by Benazić and Tomić, 2013).

4. CONCLUDING REMARKS

Business cycle analysis should help us to understand salient characteristics of the observed non-seasonal fluctuations of the economy. Business cycles are persistent and pervasive, interact with the growth trends and show important regularities of co-movement, relative timing, and relative amplitude of different economic variables (Škare and Tomić, 2015). Measuring business cycles is critical in determining the stylised facts of the business cycle regarding aggregate macroeconomic behaviour over time. Although a cycle in economic activity is a stylized fact in macroeconomics, it is less clear as how to measure it and interpret its behaviour. The process of measuring the business cycle takes place in several steps. First, we must define and detect a cycle, and second, we must determine the turning point. The goal of this study was twofold: (1) to empirically test various extraction methods as to find which variable is the most useful for studying business cycles in Croatia and (2) to evaluate the quality and accuracy of these methods. We focused on the deviation cycle extraction approach. Due to its lower volatility,

better distinction between different points of fluctuation and higher correlations across various extraction methods compared to the variable industrial production, we came to the conclusion that real GDP variable is the best candidate for observing business cycles in Croatia. When comparing the cycles for real GDP and industrial production, as they result from different cycle extraction methods, filters or models, we found substantial similarity across the cycles, with some methods yielding better results in the terms of smaller volatility and of dating important turning points such as Hodrick-Prescott filter, simple exponential smoothing, Christiano-Fitzgerald filter and Markow-switching model. Hence, the Hodrick-Prescott filter showed the best properties. We are of the opinion that Hodrick-Prescott filter and other methods that displayed proper features, together with other methods important for monitoring and explaining business cycles such as fractional integration (suggested by Škare and Stjepanović, 2013), and Bry-Boschan algorithm and Markov regime switching model (suggested by Krznar, 2011), should be used within future researches on this topic in Croatia. Our approach and deductions made above present only our research logic and could/should be subject to revision in the future.

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APPENDIX

Correlation matrix for lnGDP and lnIND

lnGDP	ARIMA_211	BK_4	BN_212	BUTTERWORTH	CF_4	DF_1	EXP_SMOOTH	HP_1600	lnGDP_2qMA	LOG_TREND	MS_2	POLY_TREND
ARIMA_211	1.00	0.68	0.83	0.73	0.67	0.96	0.88	0.46	0.75	0.15	0.91	0.37
BK_4	0.68	1.00	0.67	0.84	0.99	0.65	0.64	0.82	0.65	0.40	0.69	0.43
BN_212	0.83	0.67	1.00	0.77	0.66	0.90	0.89	0.43	0.72	0.11	0.80	0.32
BUTTERWORTH	0.73	0.84	0.77	1.00	0.82	0.75	0.79	0.57	0.61	0.20	0.67	0.28
CF_4	0.67	0.99	0.66	0.82	1.00	0.64	0.63	0.83	0.64	0.41	0.68	0.44
DF_1	0.96	0.65	0.90	0.75	0.64	1.00	0.94	0.43	0.63	0.14	0.86	0.32
EXP_SMOOTH	0.88	0.64	0.89	0.79	0.63	0.94	1.00	0.33	0.57	0.01	0.79	0.12
HP_1600	0.46	0.82	0.43	0.58	0.84	0.43	0.33	1.00	0.45	0.73	0.54	0.70
lnGDP_2qMA	0.75	0.65	0.72	0.61	0.64	0.63	0.57	0.46	1.00	0.15	0.78	0.41
LOG_TREND	0.15	0.39	0.11	0.20	0.41	0.14	0.01	0.73	0.15	1.00	0.30	0.75
MS_2	0.91	0.69	0.80	0.66	0.69	0.86	0.79	0.54	0.78	0.30	1.00	0.51
POLY_TREND	0.37	0.43	0.31	0.28	0.44	0.32	0.12	0.70	0.41	0.76	0.51	1.00

lnIND	ARIMA_211	BK_4	BN_111	BUTTERWORTH	CF_4	DF_1	EXP_SMOOTH	HP_1600	lnIND_2qMA	LOG_TREND	MS_2	POLY_TREND
ARIMA_211	1.00	0.65	0.96	0.75	0.58	0.97	0.91	0.36	0.76	-0.01	0.88	0.22
BK_4	0.65	1.00	0.60	0.73	0.98	0.62	0.61	0.80	0.61	0.35	0.69	0.50
BN_111	0.96	0.60	1.00	0.76	0.55	0.99	0.93	0.37	0.72	0.04	0.87	0.25
BUTTERWORTH	0.75	0.74	0.76	1.00	0.69	0.75	0.73	0.45	0.59	0.12	0.74	0.21
CF_4	0.58	0.98	0.55	0.69	1.00	0.57	0.55	0.86	0.46	0.52	0.70	0.61
DF_1	0.97	0.62	0.99	0.75	0.57	1.00	0.91	0.40	0.66	0.07	0.88	0.30
EXP_SMOOTH	0.91	0.61	0.93	0.73	0.53	0.91	1.00	0.26	0.68	-0.14	0.82	0.05
HP_1600	0.36	0.79	0.37	0.45	0.86	0.40	0.26	1.00	0.44	0.68	0.53	0.84
lnIND_2qMA	0.76	0.61	0.59	0.46	0.55	0.66	0.68	0.44	1.00	0.06	0.65	0.40
LOG_TREND	- 0.01	0.35	0.04	0.16	0.52	0.07	-0.14	0.68	0.06	1.00	0.39	0.84
MS_2	0.88	0.69	0.87	0.74	0.70	0.88	0.82	0.53	0.65	0.34	1.00	0.46
POLY_TREND	0.22	0.50	0.25	0.22	0.61	0.30	0.05	0.84	0.40	0.84	0.46	1.00

Source: Authors' calculation based on the data from the HNB (EViews 9.5 and Gretl).

THE OPTIMAL MODEL FOR ATTRACTING FOREIGN DIRECT INVESTMENT: THE CASE OF THE REPUBLIC OF CROATIA

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ABSTRACT

In the era of growing competition among countries to attract new domestic and foreign direct investment, it is important to define a quality and long-term strategy of a country, in order to maximize the possibilities of attracting new investments. Furthermore, it is important to identify the optimal model that will enable increased investment inflow and thus contribute to the growth and development of the domestic economy. The paper analyzes the features but also the advantages and disadvantages of different models of attracting foreign direct investment, with particular emphasis on countries considered to be most efficient in this process (Ireland and Slovakia). Also, the existing model in the Republic of Croatia has been analyzed and recommendations for its improvement have been provided.

Keywords*: foreign direct investment, investment attracting model, the Republic of Croatia*

1. INTRODUCTION

The paper examines the impact of institutional support in attracting foreign direct investment in the Republic of Croatia and analyzes the Croatian way of attracting foreign investment through different institutions, the results of such a way of attracting investment, and compares the Croatian model with the best practices abroad. The aim of the paper is to determine the optimal model of attracting foreign direct investment in the Republic of Croatia. Just as globalization is changing economy, so too have countries around the world changed their investment attracting strategies over the years. Initially, market-adjusted strategies were applied, i.e. investment conditions were liberalized by reducing obstacles to foreign investment, thus in some countries foreign investors had a privileged status. In the second phase, a larger role was given to stronger promotion of the country as a desirable investment destination, and the first investment promotion and support agencies were being set up to ensure greater investment inflow in the country and easier and simpler realization of investment projects. In the third phase, the focus was on targeted investment in specific sectors and regions. The number of investment projects and the number of employees were no longer as important as the quality of the project, job quality, positive impact on the economy and so on. However, one of the most common strategies for attracting foreign investment is an appealing investment incentive system that may include several regulations controlling the issues of taxes, salary contributions or investment incentives. Thus, the strategies may include low general corporation tax rates, reduced corporation tax liabilities for reinvested profits, lower salary contributions and taxes, and investment incentive system in the form of investment incentive law, which could, for example, bring reduction in or exemption from paying costs for corporation tax purposes for a certain period, employment incentives, professional training of new employees incentives, exemptions or reductions for import duty, subsidized loans, incentives for specific activities such as research and development, infrastructure development or non-fiscal incentives such as maintaining taxation conditions for a certain period of time. In the European Union (EU) and the countries that are in the process of accession, the incentives

issue is a matter of market and market competition, so defining the incentive system is not entirely arbitrary for the member countries, but every country, when drafting the legal framework, has to adhere to certain common rules and this incentive system is subject to approval by the European Commission (EC). Namely, the incentives of member states must be in accordance with the EU's Regional State Aid Guidelines. The maximum intensity of aids in the member states is defined by the map of regional aid, which is also approved by the EC. In accordance with the strategy of each member state, each state selects the way it intends to structure incentives for investment in the country. Thus some countries choose only indirect incentives that do not have a direct impact on the country's budget, but are about exempting future revenue such as exempting or reducing the mandatory corporation tax costs. Other countries allocate more direct incentives in terms of incentives for employment, infrastructure development or the return on capital investment. Direct incentives require higher state budget expenditures and more cautious funding planning to avoid negative impact should there be insufficient funds in the budget to stimulate investment. The most common model in the EU is a combination of indirect and direct investment incentives. However, due to economic development, in recent years in Europe, access to good quality workforce plays a key role in new investments in the form of existing capacities expansion or the development of new ones. Consequently, one of the more significant state policies will be to invest in the knowledge and skills of the workforce and to retain and attract it. Unemployment statistics in the EU countries for 2017 show that some countries such as the Czech Republic and Germany have a very low unemployment rate, so new investment companies must have a quality strategy for attracting future employees, most often by attracting employees from other companies or, if legally permissible, by employing people from other countries. This implies more attractive employee compensation, from salaries, working conditions and other employee benefits. The paper consists of four parts. After the introduction, the second part analyzes selected models of attracting foreign direct investment - the Irish and Slovak models. The third part analyzes the model of attracting foreign direct investment to Croatia. The fourth part refers to the conclusion.

2. ANALYSIS OF SELECTED MODELS FOR DISTRIBUTION OF FOREIGN DIRECT INVESTMENTS

2.1. Irish model

Ireland owes its current economic success to a number of things. First of all, it happened due to macroeconomic and political stability, trade liberalization, foreign investments which were crucial for new job creation, increased production and export, and an overall social consensus on economic policy. On top of all this, there was help from the EU funds (Ireland acceded in 1973), but also strong economic ties with the United States, in which the Irish diaspora played a major role. Also, Ireland's Industrial Development Authority (IDA) has played an important role in the country's economic development, especially by attracting foreign investors. Through years of successful and continuous activity, IDA has positioned itself as a key institution, not just for foreign investment, but also as an institution vital to the development and implementation of the country's economic development policy. Structural reforms have created major internal changes in the Irish economy. Because of the great dependence on the British market, the Irish economy relied on agriculture. However, the entry of foreign capital and the gradual liberalization of trade have pushed aside a long-dominant agriculture industry. The industry has been modernized, contributing to productivity growth, largely thanks to foreign investment, and the service sector has become a generator of new jobs. There is a dramatic increase in employment in information technology, pharmaceutical and financial services sectors. The emphasis has been placed on these three sectors due to their long-term growth and employment potential, clustering capabilities, technology transfer and the effect of benefits spreading to other economic sectors.

Thus, the key aspect of the changes in the economy has stemmed from strong investments in high technologies. While the high-tech industry experienced a severe global breakdown in 2001, 50 000 new jobs were opened in Ireland that year, primarily as a result of the entry of US companies, which wanted to conquer the European market through Ireland. Membership in the EU additionally boosted the confidence of foreign investors, and EMU membership led to a reduction in exchange rate risk, cost of cash transactions and low interest rates. Along with lower labor costs, technology development enabled a reduction in transport and communication costs, thus overcoming a relative geographical disadvantage of being an island country. The distribution network has been developed and branched (most of Europe can be supplied within 48 hours), which further encouraged foreigners to place their European bases in Ireland. Labor force is productive, flexible, relatively young (40% of the population is younger than 25) and highly educated. Bureaucratic procedures for business registration and licensing are simple, fast and inexpensive, and the return on investment is one of the highest among OECD countries (22%). The telecommunications market is completely deregulated and one of the most competitive in Europe (40 concessions and 20 operators present on the market). The reform of the education system is aligned with the needs of the economy, and the effect of reforms in the nineties has contributed to an average growth of about 0.6 percentage points. Today, Ireland invests 5.5% of GDP in education, while the OECD countries' average is 4.9%. The government has especially stimulated the introduction of information technology in the last decade and encouraged the study of IT and technical sciences. Furthermore, the existence of an official government institution that has been continuously and successfully operating over the years has largely contributed to the realization of new projects and to attracting new foreign investment. In fact, the Irish government created packages through IDA for attracting new investments which, apart from listing the benefits offered by the Irish economy for the development of a new business, included tax incentives, employment grants, potential investment locations, and other forms of infrastructural support. IDA's role is still significant for the development of the economy and in 2015 it adopted a five-year investment attracting strategy with which they expect to attract 900 new investment projects and create 80 000 new jobs. To conclude, the Irish model is considered to be one of the most successful models for attracting foreign direct investment, and many European countries have tried to implement it as well. However, one must not ignore certain specificities about Ireland, such as a strong diaspora, the "*baby boom*" in the 1970s, which created a potential labor force base, English speaking area (the largest share of investments came from American companies), i.e. the country had certain starting points that cannot be found in any other European countries. Nonetheless, the consensus of all stakeholders in the process of attracting foreign direct investment, strong government support, the improvement of the education system, a strong institution which operates continuously and an encouraging business environment are certainly factors that each country needs to consider when defining the model for attracting new investment.

2.2. Slovak model

It was only after the year 2000 that Slovakia recorded a significant increase in foreign direct investments, when they amounted to USD 2 billion, and most of these investments related to investments in the automotive industry and the manufacture of parts for the automotive industry. After a decline in investment in 2009, Slovakia has recorded its increase since 2011, while significant investments were announced in 2015. Namely, Jaguar Land Rover announced the construction of a new factory in Slovakia worth USD 1.1 billion. Sario, the national investment promotion agency established in 2001, can take most of the credit for the aforementioned trends. It represents the second attempt by the Slovak government to promote investment. Initially, Sario was a joint stock company owned by the National Real Estate Fund.

Later it was transferred to several ministries and eventually became a state agency under the Ministry of Economy. However, despite frequent changes in legal form and obstacles to its operations, Sario has mediated in the realization of several major investment projects such as Peugeot/Citroen and Hyundai/KIA. Since 2002 Sario has supported more than 460 investment projects that have led to the creation of more than 10 000 new jobs, with a total worth of nearly USD 10 billion. Sario has devised a development strategy in which investment attracting activities are focused on sectors with the highest potential, namely automotive, ICT, steel and chemical industries, consumer electronics, and research and development. At the same time, a stimulating business environment has evolved, and Slovakia has continually been improving its business and investment conditions for the last several years. The government has developed a system of incentives and support that is primarily based on tax exemptions, i.e. exemption from corporation tax, direct support for new employment and for the purchase of tangible and intangible assets and preferential real estate prices owned by the state or the local community. Stable economy, labor force, favorable labor costs, proximity to major European markets and support for new investment projects were all factors that influenced the attractiveness of Slovakia as an investment destination. Since most of the success in attracting foreign investors lies in the automotive industry, below is the example of the first major automotive investor (KIA Motors) demonstrating the model of attracting new foreign direct investment. KIA Motors sought a new location based on state incentives and favorable business conditions (structural reforms and stable business climate, market proximity, quality and cost-efficient workforce). The Slovak Government, in cooperation with the local community, devised a whole range of support to attract the foreign investor. All the incentives considered to be public good are not included in the maximum intensity of the support, so the emphasis, besides being on the training of the workforce, was precisely on the set of incentives that improve the infrastructure. The nearby infrastructure was thus improved (freeway, railway terminal, reconstruction of the nearby airport), as well as the provision of housing (building of luxury housing units for Korean management with the stimulus for the further construction of housing units for workers) and the provision of medical services (a new hospital). Furthermore, a support package for educating future employees of the factory was created (subsidizing retraining, employer support, English language courses for children). Although Slovakia is a country that attracted the least foreign direct investment within the Visegrad Group, it has been set as an example of a country which has managed, despite the lack of continuity in institutional support for the realization of investment projects, to put itself on the investor map of Europe. Slovakia primarily owes this to the sectoral focus (the automotive industry), but also the strong support of national and local governments, which in their efforts to attract foreign investors built entire "cities".

3. CROATIAN MODEL OF ATTRACTING FOREIGN DIRECT INVESTMENTS

In the Republic of Croatia, on the national level, there are several supportive institutions for investing and supporting investors, namely: Agency for Investments and Competitiveness (abbreviation: AIK); Croatian Agency for SMEs, Innovations and Investments (abbreviation: HAMAG-BICRO); Center for Monitoring Business Activities in the Energy Sector and Investments (abbreviation: CEI) and the Croatian Chamber of Economy (abbreviation: HGK) These institutions are responsible for specific sectors and size of enterprises in the area of attracting investments and supporting investors. Some of the abovementioned institutions, AIK and CEI, were founded due to the legal vacuum resulting from the abolition of the Agency for Export and Investment Promotion (abbreviated name: APIU) in 2010, by adopting the Act on Termination of the Agency for Export and Investment Promotion. Furthermore, the HGK has established the Center for Investments as an organizational unit within the HGK due to the termination of the APIU. The work of these institutions is entirely or substantially financed

from the state budget of the Republic of Croatia or mandatory membership fee (HGK). To provide a clearer picture of the competences of individual institutions in the Republic of Croatia, the table below provides a summary of particular competencies of individual institutions, regarding the size of the enterprise, the legal form and the planned investment activity, i.e. the investment sector.

Table 1: Competences of institutions in the Republic of Croatia in attracting investment

Institution	Competence	Activities/sectors
Agency for Investments and Competitiveness (AIK)	• competent for large enterprises (≥ 250 employees and € 50 million annual income or > € 43 million of total assets)	• production-processing activities; • development and innovation activities; • business support activities; • high value-added services activities; • responsible for administrative verification of registered private and public-private projects (PPP) in accordance with the Act on Strategic Investment Projects of the Republic of Croatia • responsible for approving PPP project proposals
Croatian Agency for SMEs, Innovations and Investments (HAMAG-BICRO)	• competent for microentrepreneurs (<10 employees and ≤ € 2 million of annual income or ≤ € 2 million of total assets), • small entrepreneurs (<50 employees and ≤ € 10 million of annual income or ≤ € 10 million of total assets), • medium sized entrepreneurs (<250 employees and ≤ € 50 million of annual income or ≤ € 43 million of total assets), and • natural persons/crafts	• production-processing activities; • development and innovation activities; • business support activities; • high value-added services activities; • guarantees; • loans for beginner entrepreneurs • financing of business and development of small business entities by lending under more favorable conditions and other forms of financial support (e.g. issuing guarantees for securing the principal amount of loan provided by commercial banks or Croatian Bank for Reconstruction and Development) • managing operations related to technology transfer and encouraging research, development and innovation in the private and public sectors of the
Center for Monitoring Business Activities in the Energy Sector and Investments - CEI	• public companies from the energy sector • private companies operating in the energy sector	• development of the energy sector in the Republic of Croatia; • investment projects in the energy sector (including renewable resources); • investment projects of public-private partnership; • administrative verification of submitted energy projects in accordance with the Act on Strategic Investment Projects of the Republic of Croatia
Croatian Chamber of Economy - HGK	• companies registered in the Republic of Croatia, members of the Croatian Chamber of Economy	• there are no limitations per sector

AIK has been established for systematic and operational implementation of policies and measures to increase the competitiveness of the Croatian economy with a particular emphasis on promoting legal persons' investments, improving efficiency in applying innovation and supporting the use of financial mechanisms to support the economy, providing there is compliance with environmental legislation, i.e. sustainable development principles. In the area of investment, AIK is responsible for the investment of large legal entities investing in all sectors except energy, for which support is provided by a special institution, the CEI. At the regional or county level in the Republic of Croatia, almost all counties and the City of Zagreb have established development agencies with the aim of increasing the economic development of the administrative area in which they operate. Agencies have been established as companies or public institutions and are funded by donations from the state budget, income from their own business activities and other sources such as EU funds. In the absence of regional offices of national agencies, regional development agencies act as partners in the local market. In the Republic of Croatia there has been no consistent policy for attracting foreign direct investment for a long time. Institutional support was not constant and the result of that is a number of established and abolished institutions, unfavorable structure of foreign direct investments and an undefined type of investment to be attracted. However, over the last few years, considerable efforts have been made in the area of attracting investment, as well as improving the investment and business climate. As far as the entrepreneurial infrastructure in the last decade is concerned, a great emphasis has been put on infrastructure development, i.e. the creation and equipping of business zones or locations ready to accept domestic and foreign investors. Establishing entrepreneurial zones is a practice common in the European countries, and there are also examples where investment agencies manage these zones instead of the local community. According to data from the Catalog of Business Zones of Agency for Investments and Competitiveness, information is available on 152 zones, fully equipped, with a total area of about 95 million m^2, with over 1100 entrepreneurs operating in them. Incentive measures are also one of the factors that characterize the investment attracting model, and the Investment Promotion Act foresees attractive incentive measures for investors - tax incentives, incentives for employment and training, and incentives for capital investment costs. Not all sectors are supported by the incentives, but the focus has been placed on production-processing activities, development and innovation activities, business support activities and high value-added services. Advantages compared to other countries, Croatia's competitors in attracting investment are the following: one of the highest incentives for employment (up to a maximum of 18 000 euros); non-refundable subsidies from national sources (up to 1 million euros for capital investment costs up to 0.5 million euros for research and development activities); the exemption of income tax (up to 10 years) and the possible combination of incentives together with funds from other sources, such as the structural funds. In addition, in recent years, the Croatian government has been trying to make the role of diplomatic and consular missions network more active in the country's economic development, primarily in the field of improving export performance and increasing foreign investments in the Croatian economy. The system was set up in 2013, but it requires additional efforts to improve primarily in the area of attracting new foreign investment. As an essential determinant of the analyzed model, it is important to improve the legislative framework as well. Thus, the Act on Strategic Investment Projects of the Republic of Croatia is adopted in 2013, which enabled faster implementation of investment projects, the reduction of the number of procedures and permits required, a clear definition of the course and project performance, and setting the deadlines for each stage of the investment project. The aforementioned Act is only one of a series of legal acts by which the Republic of Croatia has improved the investment environment with the aim of launching the investment cycle and facilitating the conditions for investing in the Croatian economy. Furthermore, one of the most significant reforms was the new Spatial Planning Act and the Construction Act,

which, among other things, significantly reduced the time needed to obtain building permits, which further confirms the fact of the positive results of the changes in the investment and business environment in the Republic of Croatia. Furthermore, competitiveness clusters can also be seen as one of the tools used by the Republic of Croatia as part of the investment attracting model: AIK has initiated the establishment of 13 Croatian Clusters of Competitiveness (HKK) in cooperation with the Ministry of the Economy. Established HKKs represent a "*triple helix*" The principle of intertwining the private sector, the state institutions responsible for the creation of economic policy and academic and scientific-research institutions, and their purpose is to improve Croatian industrial production by linking all stakeholders, sharing knowledge and experience, developing new projects and promoting Croatian products and services in the national and international markets. Today, clusters comprise 633 members, representatives of scientific and research institutions, public and private sectors. As part of the promotion of the investment potential of the Republic of Croatia, the Agency for Investments and Competitiveness stood as a candidate for the best foreign direct investment award in Central and Eastern Europe, the countries of the former Commonwealth of Independent States and Turkey at one of the largest annual investment conferences at the Annual Investment Meeting, Dubai (AIM). Although there were investment agencies from the countries such as the Czech Republic, Poland, Slovakia, Russia, Ukraine, Turkey, Hungary and others also nominated in the same category, AIK won the Best Foreign Direct Investment Award in the aforementioned area three years in a row. The award is given to national investment agencies for projects where they have supported investors.

4. CONCLUSION

Attracting investment is a highly competitive business, and countries that have recognized the importance of foreign direct investment devoted certain resources precisely to increase their inflow. The most common model is the establishment of a separate support institution or an investment promotion agency. Examples of good practice are also outlined in this paper, i.e. the models of attracting foreign direct investment in the countries that are often cited in the literature as the most successful, namely Ireland and Slovakia, have been analyzed. Whatall the analyzed countries have in common is the existence of a national investment agency that has played a key role in each of the countries in the process of attracting new foreign investment. If we compare the situation in the Republic of Croatia, we can conclude that only nowadays it has started to approach successful models of attractingforeign direct investment. Namely, today's model was preceded by the years of establishment and abolition of institutions, frequent changes to legal frameworks, but also investment conditions, all of which gave rise to an image of inconsistent foreign investment policy. Therefore, the model of attracting foreign direct investment currently applied in the Republic of Croatia represents progress compared to the previous periods when the focus of the economic policy was not on the growth of investments. Positive action can also be observed in creating favorable conditions for the realization of new investment projects, and there are also efforts to build the image of the country as a preferred investment destination. Furthermore, the Republic of Croatia is keeping up with global trends in attracting investments with specialized investment attracting institutions, strong support from the government of Croatia and the network of regional support institutions. However, there is room for improvement, primarily in the area of consolidating all the investment activities into one institution, as there are currently four different institutions active that differ according to various users and sectors. The main guidelines for further development of the system of attracting foreign direct investment, as well as the strengthening of domestic investment activity through the creation of an optimal model for attracting investment, should primarily include: consolidating investment attraction activities into one institution, ensuring continuity in operation to avoid "historical mistakes", but also strengthening the role of the institution to

attract investment over the years, along the lines of the major competitor nations in attracting new investment. Also, it is of utmost importance to retain the support of the Government of the Republic of Croatia and to continue with the strengthening of regional partners. To conclude, it is evident from all of the abovementioned that the Republic of Croatia has built a quality system for attracting investments, and by adopting the recommendations put forward, a stable, successful and effective investment framework will be ensured.

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THE ESSENCE OF INVESTING IN ENVIRONMENTAL, SOCIAL AND GOVERNANCE SPACE (ESG) IN SOUTH AFRICA

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ABSTRACT

Governance is an important component in corporate environment. It supports efficiency and improves quality. Mbatha Chain Distribution (Pty) Ltd (MCD) is in the business of manufacturing household products and distribute them to retailers. The company is among the one of the biggest retail industry in South Africa and has been operating as a going concern for more than twenty years. MCD is listed in the Johannesburg Stock Exchange (JSE). MCD has the main operating manufacturing site in Gauteng and has chain stores in West and Central Africa and in all the provinces around South Africa. MCD's revenue is generated from 32% of grain products, 30% of consumer goods, 18% of international trade and 20% from associates. ESG is an ethical code of conduct; hence, MCD has considered techniques in analysing the level of risk appetite and risk tolerance that may be seen as acceptable or not acceptable in retaining its sustainability in the food industry. MCD will half yearly evaluate the level of risks and have them monitored in order to mitigate them. MCD has adapted an approach used by Tiger Brands in order to measure the risks in three tiers. Using a theoretical research inquiry, the paper aims to appreciate the use of ESG and the risk attached to it.

Keywords: *Governance, MCD, JSE, Consumers goods, ethical code*

1. INTRODUCTION

Mbatha Chain Distribution (Pty) Ltd (MCD) is in the business of manufacturing household products and distribute them to retailers. The company is among the one of the biggest retail industry in South Africa and has been operating as a going concern for more than twenty years. MCD is listed in the Johannesburg Stock Exchange (JSE). MCD has the main operating manufacturing site in Gauteng and has chain stores in West and Central Africa and in all the provinces around South Africa. MCD's revenue is generated from 32% of grain products, 30% of consumer goods, 18% of international trade and 20% from associates. Our financial year-end is in December of each year and our interim reporting is in July of each year. The total group turnover from continuing operations reported from our half-yearly results increased by 17% to R81.8 million in 2017 compared to R69.9 million in 2016 regardless of challenges related to rising unemployment rate which is now 27.7% as reported in July 2017 compared to 26.5% reported in January 2017. There was also food inflation due to the worst drought in 2015, which took place in South Africa and had affected consumption of certain household goods. Total EPS, including discontinued operations increased by 71% to 1 034 cents compared to 604 cents in 2016, which is in line with the one forecasted from the previous year. Total HEPS including discontinued operations increased by 17.5% to 1 067 cents compared to 908 cents from the previous year. We are expecting a growth of 21% in 2018; therefore, we consider a hold in our stock, any decision to sell or buy will be considered after our financial year-end. MCD has set the reporting standards to meet with the reporting principles and requirements as indicated in the International Financial Reporting Standards (IFRS) and the Companies Act, 71 of 2008 of South Africa (Companies Act) as well at the JSE Listing Act. As part of our management strategy, our financial reporting includes corporate governance policy statement

in order to fulfil the code of ethics and to ensure that good practice in MCD is well managed at its best possible financial outcome. MCD financial reporting includes corporate governance policy statement in order to be aligned with the policies, strategies and procedures that defined the principles of accountability as directed by the Companies Act.

2. THE PURPOSE OF ESG

Included in the King 1V report is the environmental, social and governance (ESG) factors. There is no set definition pertaining to ESG, Gillan, Hartzell, Koch and Starks (2010) defines ESG as the 'performance related to firms' operating performance, efficiency, and compensation practices, trading by institutional investors, and ultimately, valuation'.
ESG can further be analysed in a broader view, whereby each term is separately, defined:

- Environment is defined in English dictionary as the 'surroundings of, and influences on, a particular item of interest'.
- Corporate social responsibilities are set of engagements that businesses voluntarily take in order to empower citizens in all areas of business capacities. These engagements are meant to contribute to socio-economic development in a sustainable manner.
- Governance is defined in English dictionary as 'the process or the power of governing or accountability for consistent, cohesive policies, processes and decision rights'.
- Corporate governance is defined as a set of rules and procedures that promote ethical leadership for good and effective management behaviour. The rationale for the above is also to promote ethical culture leading to better performance for employees in general and the companies in particular

Beiting, Iannou and Serafeim, (2017) interpreted ESG reporting as an area that could 'improve transparency to the investors, improve the internal control system'. Transparent and well-managed quality of data between the firm and investors will create a level of trust and reduced informational irregularity and this will lead to lower capital constraints. It was further, indicated in Beiting, Iannou and Serafeim, 2017 that 'firms with high scores in ESG tend to have lower idiosyncratic risk and those with low scores may experience financial distress'. To date we have complied with the reporting standards regulated by IFRS but we have not assessed MCD's operating effectiveness with regard to social responsibility. It is highly possible that MCD will have a huge adjustment on remuneration to board members in order to contribute towards social responsibility. Our main purpose going forward is to evaluate our contributions towards ESG, we have to measure the risks and assess whether we can still optimise our investments.

3. FINANCIAL RISK EXPOSURE

ESG is an ethical code of conduct; hence, MCD has considered techniques in analysing the level of risk appetite and risk tolerance that may be seen as acceptable or not acceptable in retaining its sustainability in the food industry. MCD will half yearly evaluate the level of risks and have them monitored in order to mitigate them. MCD has adapted an approach used by Tiger Brands in order to measure the risks in three tiers.

Tier 1: Acceptable, 'any calculated risk exposure that requires no further management mitigation, ie does not present a catastrophic threat' to MCD.
Tier 2: Average, 'threshold zone where any risk exposure that exceeds our risk appetite, but remains within the risk tolerance, may be acceptable'.
Tier 3: Not acceptable, 'all risk exposure above our risk tolerance will be considered a significant risk and must be supported by a comprehensive mitigation plan and timeline for implementation'.

The table below indicates the outcome of the risk appetite and risk tolerance relating to ESG that was measured during our interim reporting relating to the level of acceptable risk exposure.

Table 1: Outcome of the risk appetite and risk tolerance relating to ESG

Environment				**Social**				**Governance**			
	T 1	**T 2**	**T 3**		**T1**	**T2**	**T3**		**T1**	**T2**	**T3**
Pollution	✓			Implementation of BBBEE in MCD		✓		Effective governance		✓	
Disclosure	✓			Product quality and safety	✓			Implementation of policy documents		✓	
Sound environmental practices		✓		Community interaction			✓	In full compliance with King IV Report		✓	
Geographical area	✓			Respect for human rights	✓			Yearly checks pertaining to conflict of interest	✓		

N.B: Tiers to be equivalent to T

4. RISK MEASUREMENT

MCD is faced with the market risk associated with interest rates, exchange rates, stock process and commodity prices. The interest rates risk faced by MCD is that some of the suppliers purchase the goods on credit and therefore the company will have an exposure in financing raw material purchases. MCD has the branches outside South Africa and there will be foreign exchange transactions, which requires specific skills. MCD is listed in the JSE; therefore, the expansion financing is affected by the price the company receives for its share issuance. Market risk measurement will be a prerequisite in making an informed decision with regard to our contributions towards ESG. Although ESG may be regarded as a charity transaction towards corporate social responsibility, during the promotion of new stock to the community there is an indirectly marketing linked to increased revenue and long-term investment. Our main purpose is to maximize profits; therefore, we can accept a certain level of loss by measuring the risks.
We will use the value at Risk (VaR) as a probability based measure of the minimum loss we might expect with a certain frequency over a certain period. The VaR will be measured on a quarterly basis. This means that on a quarterly basis of reporting, we expect a probability of 99% confidence interval level, VaR for a portfolio is R1 million, MCD can accept a quarterly loss to a minimum amount of R1 million.

Figure following on the next page

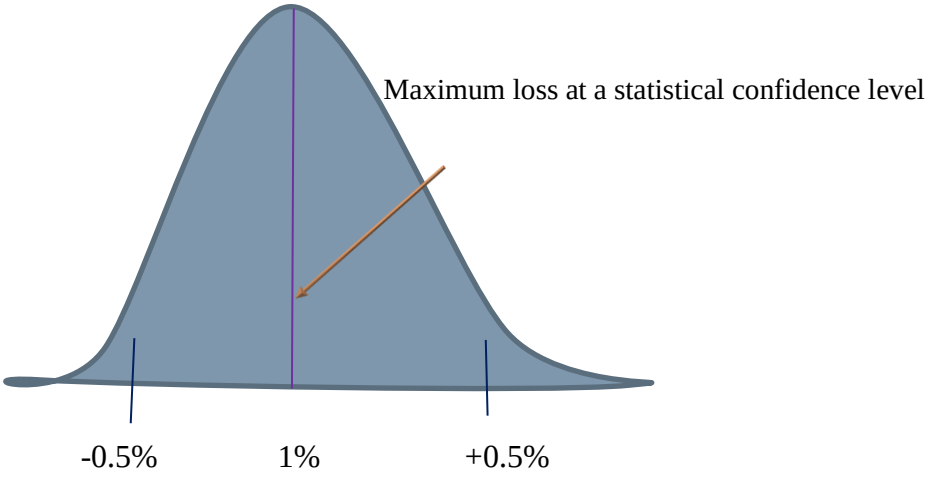

Figure 1: risk measurement

MCD is more affected by market risk, we will set an appropriate risk tolerance level and proper pre-planning or risk budgeting will be considered.

5. EFFECTIVE MANAGEMENT

King IV Report defines effective as 'the adequate accomplishment of the desired objective or a pursuit with the minimum expenditure of time, resources, waste and effort'. In order to have effective management at MCD and sound internal control system in place, MCD will review policies and practices on a variety of ESG factors before investing in financial securities. MCD will closely assess whether the ESG factors listed by Viviers, Bosch, Smit and Buijs (2009) are to date achieved or not achieved:

ESG Factors	Achieved/ slightly achieved or not achieved
Responsible investing in South Africa	Achieved
Management's commitment to combating unethical bribery, corruption and extortion	Not achieved
The firm's progress in the recruitment, training and promotion of equity candidates at different managerial levels	Not achieved
The percentage of equity candidates at board level	Slightly achieved
Respect for human rights	Not achieved
Equal opportunities in society, especially in areas that require an acceleration process concerning skills development	Slightly achieved

The factors indicated above will require MCD to have resources in place and staff capacity to evaluate whether these policies are fully implemented at all levels. As indicated that MCD anticipate in adjusting the board of directors' remuneration in order to achieve our objectives. The recruitment committee on a quarterly basis will review policies and provide feedback to MCD's Managing Director on the progress pertaining to the abovementioned ESG factors.

6. CONCLUSION

In Beiting, Iannou and Serafeim, 2017 it was concluded that 'firms with better ESG have performance that can better position them to obtain financing in the capital markets'. Based on our analysis indicated on this document, MCD's board of directors will prepare a plan of action to address the significant risks that are above our risk tolerance. Monitoring and implementation of these risks will be managed by our social, ethics and transformation committee.

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THE CONCEPT OF CUSTOMER RELATIONSHIP MANAGEMENT (CRM) IN HIGHER EDUCATION

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ABSTRACT

One of the most important dimension that affects the organization's behavior towards its external environment is managing the client system, which is at the same time the most important task of socially responsible organizations. In the mapping of the system of managing customers from the economic environment to the non-economy, the educational environment is one that constantly establishes contacts with users of educational services that are embedded in the current process of education as well as those who have already completed their education. The competitive environment, demographic dimensions, social and cultural dimensions, economic perspective are only some of the assumptions that have become important for the maintenance and development of contacts with the users of the education, since extremely predisposing market and placement of educational institutions on the map of searched and recognized education became unreliable also for educational institutions. At this point, it became of the utmost importance to establish contacts with the users of education who have already completed their education, but they nevertheless constitute an important communication link between the educational institution and the potential new users of education, and those who are involved in education that need constant communication with the sides of educational institutions, which in the given circumstances and also in the growing diversity of education in the environment, are becoming a complex component of ways to establish communication between educational institutions. With this paper we want to present the importance of implementing communication with past, existing and future users of educational services at the level of higher education through the CRM system, which is largely detected and welcomed in all environments that work in correlation with clients or different stakeholders.

Keywords: *Customer relationship management, Higher education, Students, Information tehnology*

1. INTRODUCTION

During times of constant changes, digitalization and implementation of various elements in the system of education, the management of existing and, to a large extent, the past and future users of educational services is of great importance for the value of education that the educational institutions want to expose as a fundamental and above all a respectable product, which in the eyes of the market represents one of the most important competitive predispositions. Excluding the context of efficiency and effectiveness of education, the interest of educational institutions through mission is absolutely the highest level of knowledge that in the knowledge society represents a mean of success and the possibility of climbing the career path for those who are involved in education and further on the path of lifelong learning and education. Expectations of students who, as young knowledge holders, bear the name or even after they complete their education, they are also connected with the way of contacting the faculty with the students. The growth and increasing demands of students who combine their expectations with the means of

connection with the faculty are also reflected in the various facets of the faculties, which often result in the CRM mode at the faculty. Long-term aspirations of faculties to establish relationships through various forms, whether they are alumni clubs or other principles of connectivity with students who complete studies, are important for the further development and installation of faculties as a trusted partner in the education market. Also, according to Seymour (1993), developing numerous pleased, satisfied customers, whether they are parents of students, industry employer, students, or alumni, should be a primary goal of higher institutions.

2. DEFINITION OF CUSTOMER RELATIONSHIP MANAGEMENT

The term "Customer Relationship Management" (CRM) was first used in a general sense by management scholars such as Peter Drucker and Theodore Levitt in the 1960s (Venoos and Madadiyekta 2005). Customer Relationship Management includes individuals, processes and technology and it is seeking for the customers' conception of an organization. George, Emmanuel and Rachel (2012), posited that Customer Relationship Management is a process of ascertaining customer needs; comprehending and inducing customer behavior, making use of quality communications strategies so as to obtain and maintain customers' satisfaction. Apart from the fact that Customer Relationship Management entails handling customers and observing their behaviour, it also seeks to adjust customer's behavior, thereby leading to increase in the company's revenue, because the company will decide the customers to choose and those leaving. The primary objective of Customer Relationship Management is to identify and render customized services to every customer. Customer relationship management empowers organizations to deliver exceptional actual customer service. Several researchers hold different definitions of Customer Relationship Management (CRM) (Oluseye et al., 2014). Picton and Broderick (2005) viewed CRM as a cordialrelationshipthat must exist between an institute and its consumers. It comprises a strategic and tactical management tasks aimed at achieving customer relationships, and positive communications in the long run. Berkowit (2006) also defines customer relationship management (CRM) as the effort made by organizations to improve cost-effective and long-term connection with the consumer for the gain of both the organization and the customer. The goal of CRM is a customer centric enterprise, one where the customer is the key to all interactions. While a good CRM software suite can help achieve that goal, it will fail without taking a customer centric view of the enterprise. At the very least it will not produce the hoped-for and at the worst it may be a flat failure. As a philosophy, customer centricity means putting the customer at the center of the business and trying to see everything through the customer's eyes. To achieve this goal, the business strives to present a consistent face to the customer across all channels of communication. By sharing information about the customer with all parts of the company, the business improves the customer experience in all areas. Philosophy is important but it is not enough. To achieve success you must actualize the philosophy and act on it. This is where the technology part of CRM comes in (CRM Desk, 2015). CRM systems are software applications used to automate and manage communications with prospective and current students, employees, alumni, donors – everyone in your institution's community. Customer information, such as lead's/customer's name, gender, educational background, telephone, email, marketing materials, social media and any other relevant information across different channels is compiled into a single database enabling easier information access, allowing to personalize and customize messages and the channels used to deliver the message to the student in a timely manner. Every interaction with the "customer" is tracked by the CRM, all in one place (Study Portals, 2016).

3. DEFINITION OF CUSTOMER RELATIONSHIP MANAGEMENT IN HIGHER EDUCATION

Higher education institutions are experiencing vital changes in the way they operate and interact with their 'customers', i.e. students, their parents, alumni, employers and staff members. Higher education clients are demanding more attention and instant service and so proactive universities are turning to technology – customer relationship management systems – to cater to this demand in an effective way (Study Portals, 2016). In the space of interaction with different target groups or stakeholders, the faculties are exposed as already presented, a demanding space that needs a system of control and search for solutions for the most effective and efficient connectivity with individual target groups. Undoubtedly, the correlation between faculties and students as the first target groups is undoubtedly the need for extremely important and priority connections with other clerical groups (parents, the economy, employees and others) what is also shown through the bridges of cross-section of activities with higher education institutions. The most important benefits of CRM in higher education and other organizations, are:

- speed of service,
- automation of services and connections and
- traceability.

Utilizing a CRM system drives faster service. Emails and other types of communication channels may be automated in order to speed up response time. It may also help at identifying trends which become feedback for marketing, admissions or other departments included in the process. Furthermore, CRM systems provide real-time numbers, data, and graphs that may be useful in decision making. For example, the CRM system is capable of showing an exact number of interested male/female students that come from, let us say, foreign country. Additionally, you may track every aspect of a student lifecycle. For instance, where in the recruitment process a prospective student is lost (Study Portals, 2016)? What is more important than establishing a level of connectivity speed with students that is reaching the speed of their communication with their peers. The perception and understanding of the way communication is used by new and new generations of students as a means of mutual communication is important and necessary for faculties that establish a true bridge of information in a two-way connection through fast, timely and quality communication. Another useful and widely used feature of a CRM system is workflow automation. This feature will make sure that you never forget to respond or follow up on an enquiry ever again. The system may be automated in such way that tasks are assigned to a relevant staff member automatically. For example, once the student requests a brochure, relevant department will be assigned a new task in the CRM database – to send the brochure (Study Portals, 2016). The methods of e-learning that faculties use as methods tailored to the needs and wishes of students nowadays enable an ever-increasing network of connections and maintaining contacts through online classrooms that offer to manage contacts with students 24 hours a day, 7 days a week. If we want to have good connections and manage connections with students in a way that will result in the right connections, the way of automation through the establishment of the right information technology is an important feature of building CRM at faculties. Tracking is yet another great feature that comes with the most of the CRM systems. It enables institutions to track which website(s) a certain student used to find your institution. This allows for smarter marketing budget planning, allocating resources to the most effective marketing campaigns (Study Portals, 2016). When a student finishes his studies, the link between the faculty and him seems to be suspended. Only at the faculty there is a task and all the necessary interest in maintaining the bond further. In this way, long-term connectivity and return of students to the environment of faculties is established in terms of symbiosis.

The faculty grows with new generations, yet the old generations, by returning, add the knowledge they gain during lifelong learning and training in their organizations. The fact is that the definition of CRM at faculties is a seemingly more difficult method for contact management with students than in the economy. The starting point is in the mode of work of faculties that work with education, research and other administrative work in the abundance, often losing time for this and it is seemingly difficult to get in touch with the CRM model. However, precisely because of the advancement of information technology and the adaptation of technology to the educational environment, the possibility that the faculty can use and use in its scope is adapted according to the characteristics of its students and the behavioral and other components of all target groups of faculties. Links with people, students, parents, other faculties, economics, alumni clubs are a necessity or starting point for setting up a CRM that is tailored to the work of faculties. Depending on the nature of the work - education, the length of the relationship with the target groups is all the more necessary and important, and goes beyond the usual purposes of CRM in the economy. Knowledge is a component that is far-reaching and feedback information. The monitoring of students who already leave the faculty is something that is inevitable for faculties that want success. Along with "What is it?" a fundamental question any institution should ask is "Why do we care?" First and foremost, faculties should care about CRM because their "customers" do. They might not realize it or be able to articulate it in those terms, but make no mistake-they care about CRM. The affinity people have for faculties and universities is unparalleled by other organizations. They buy our shirts, they attend our events, some wear our names as tattoos. Finally, some even entrust us with their children. They feel a real connection with us, and when that connection is not reciprocated there is a disconnect. Realistically or unrealistically, our constituents expect us to know them, and they expect us to reflect the degree of their commitment (CRM desk, 2015). These companies and others like them are setting the standard for interacting with constituents. It is not the university down the street. Furthermore, our failure to recognize an alumnus who has sent two kids to our school is more pronounced. For that former grad, the subconscious question rightly becomes, "If iTunes knows me, why doesn't my beloved institution? We believe that our ability to deal with that question can provide a competitive advantage. It can make the difference between our university's being a first choice or a second choice for prospective students. We believe that if we don't deal with that question, there are others who will and will occupy that coveted spot of "my university" in the hearts of our constituents (CRM desk, 2015). CRM is the compilation of three primary business practices: contact management, campaign management, and data-driven decision making. If your organization is considering or currently involved in the implementation of a CRM strategy, it is important to approach each of these practices in phases. Each phase must be considered individually and must be undertaken in order, because each builds on data and understandings gained in the previous one (CRM desk, 2015).

3.1. Phase One: Contact Management

Contact management is a philosophy that is designed to enable an organization to electronically track activities and interactions that an individual has with it. The heart of contact management is the discipline to consistently input each significant touch point you have with your constituents into a database so that information can later be referenced as a record of your interaction and to provide a way for your interaction to be shared with others within your organization. There are two priorities for employees for successful contact management. The first priority is entering the notes and other information from meetings with constituents in text form that summarize your interaction. Sharing the knowledge in these summaries will be very beneficial to co-workers. The second priority is to update your database with specific information you learned during your interaction with that constituent.

Examples of this might be updating an address of someone who recently moved, or changing a student's major from accounting to marketing. At its core, CRM is all about being a data-driven university (CRM desk, 2015).

3.2. Phase Two: Campaign Management

Campaign management is the process of designing and automating your marketing strategies. Campaign management is a very powerful tool that enables your organization to build, schedule, and track marketing campaigns. For campaign management to be viable you have to be able to trust that your data is accurate-and that's why campaign management comes after contact management. In many cases, it is the data that is captured during the contact management process that triggers a campaign to start. If you don't have accurate data, the likelihood for constituents to be left off a campaign, or worse yet, be included in a wrong campaign, increases. Get all employees in the habit of entering useful information into the system so that it can be shared and analyzed. Campaign management basically consists of two types of campaigns: reactive and proactive. Reactive campaigns are essential in communicating with constituents because they are based upon the behaviors of constituents. Behaviors such as attending an event, paying a student bill, and contacting the alumni office all merit a response from the university back to the constituent. Reactive campaigns are considered a necessity in the eyes of your constituents, and by using campaign management to deliver those specific communications, you can control the quality of the content as well as the timing of the communication. Proactive campaigns are generally used to help a university achieve a particular goal that without marketing would not be attainable (CRM desk, 2015).

Phase Three: Data-Driven Decision Making

At its core, CRM is all about making smart decisions based on good data. There are four basic elements within data-driven decision making (CRM desk, 2015):

- Commit to capturing data. This is the most important step, but it can also be the most difficult because it involves culture change. File folders, personal e-mail files, spreadsheets, sticky notes, and so on, are all ways many employees keep track of their information. The problems with each of these are that they are not easily shared, they are often temporary, and they cannot be analyzed. One of the greatest problems facing decision makers at universities today is the inability to use data captured by the employees working directly with constituents to make decisions. This is the case because many ERP systems make it difficult for end users to enter data such as call notes into a database. And when simple tasks become difficult, employees stop doing them. Start today by making the database the center of your processes. Make your mantra, "If it isn't in the system, it never happened." Be very strict about this. Even if you aren't working on a system that makes it easy to enter and share collected data, it is important to get all employees in the habit of entering useful information into the system so it can be shared with other employees (both within your department and outside your department) and analyzed. This helps protect your department from employee turnover by ensuring that much of the knowledge an employee has about a constituent stay in the system as opposed to walking out the door with the employee.
- Enhance your data. There are two primary ways to enhance your data. You can do this internally through marketing efforts to gather more information about your constituents, or you can purchase third-party data to enhance what you already have. Two areas at universities that rely heavily on third-party data are the recruiting and advancement areas.
- Analyze your data. Only when you have a culture that is committed to capturing data can you trust the data enough to analyze it and make strategic decisions based on your analysis. You can create reports that measure the performance of your marketing campaigns, the response to your advertising dollars, the differences between matriculants that retain versus those that do not retain, and so on. Get carried away with analyzing what you do. It is the

best way to inform your institution on changes that need to be made, and it will provide the data you need to make those decisions.

CRM is simply not a one-off event, but an obligation of all faculties that want to handle their target groups in a way to assume responsibility for the implementation of their own activity and to establish a long-term connectivity system with past students and create a connection for building and developing the tradition of the faculty. The decision to put in place student management system may be seemingly easy. The installation of the right system is a more far-reaching task of the faculty, which will be in the right place, with the right people, with a functioning information system and appropriate social connections, the right solution for faculties who want and will want to follow the changes, and especially - to see and understand their students -, past and future.

4. CONCLUSION

After all, in every activity, whether it is oriented towards direct earnings or in the direction of the general public good happiness, is a similar dimension that guides our actions. Despite the fact that society is increasingly identified with the elements that arise on the one hand, from the establishment of positive values and importance of the connection of individuals in society in terms of socialization, and on the other hand, with the increasing pressure of the development of information technology, which directly affects our behavior up to ourselves and others, we are faced with an important role of the behavior and relationships of organizations with their clients. The basic criteria of CRM in organizations are related to finding new users of services, establishing a list of data on existing users, monitoring and analyzing user behavior, and measuring user satisfaction, etc. One of the most important building blocks of CRM, which must be understood and implemented (if not yet) by each faculty, is an IT user, as the basic concept of CRM is exactly the concept of centralization of the System, which can only be tolerated by a well-established system of information connectivity. In this way, faculties can also provide a deeper insight into the characteristics and behavior of students, and undoubtedly improve the quality of cooperation and communication with users. Since faculties are a knowledge bearer that leaves longer-term endorsements in society, the foundation of the CRM concept is all the more important for establishing quality relationships that can be the basis for both current cooperation with students and for future longer-term cooperation when students are already climbing in work environment systems. The key to completing our contribution is to understand the fact that a variety of customer relationship management systems (CRMs) can also help the higher education area to grasp the important dimension of dealing with students in a way that makes economic organizations an effective premise between the institution and the market. By inspecting the current situation and the set of students, their behavioral characteristics, their attitude towards studies and professors, and finally the faculty, the first bridge of management, or, above all, communication with students is established. The second bridge is through the construction of a list of past students who should not remain forgotten by leaving the university, but they must remain part of their faculty in the future - this can be done by the faculty with an appropriate system for managing relations with past students. On the basis of ties - existing students - past students are, last but not least, building a feedback loop in such a way that the positive relationships of the faculty reflect on future students who often take the important decision of their life based on the experience and knowledge of students who have already completed their studies.

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THE INFLUENCE OF SERVQUAL MODEL AND ATTITUDE ON CUSTOMER'S SATISFACTION AND LOYALTY IN ISLAMIC BANKS OF SAUDI ARABIA IN DEVELOPING COUNTRIES

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ABSTRACT
The purpose of this study was to extend the SERVQUAL model with attitude and to investigate the customer satisfaction and customer loyalty for Islamic Banks. This study used survey method where data was collected from 500 respondents through a questionnaire survey. Structural equation model (SEM) was applied to check the hypothesis relationship between proposed constructs. Finding revealed that the extended model has significant impact on customer satisfaction and customer loyalty in Islamic banks of Saudi Arabia. Furthermore, this study unearths certain areas that were not previously discussed in Arab cultural context such as attitude. The findings of this study will be helpful for Managers and policy makers to improve the service quality in Islamic Banks of Saudi Arabia. Extension of this study in other developing countries is recommended as this study was contextualized in Saudi Arabia cultural context.
Keywords: *SERVQUAL, Attitude, Customer Satisfaction, Customer Loyalty, Cultural Context, Structural Equation Modeling (SEM)*

1. INTRODUCTION

Services are increasingly becoming a large portion of any organization and being considered as indispensable tool for revenue stream (Dhandabani, 2010). Service quality has been defined as the customer expectations and perception of actual service (Parasuraman, Zeithaml, & Berry, 1985). According to Grönroos (1984) defined service quality as the outcome of the comparison that consumer make between their expectation and perception. In banking industry service quality plays a vital role in improving of customer satisfaction (S Rahi, 2016; S. Rahi & M. Ghani, 2016). The findings of Teas (1994) suggest that long-term relationship and customer satisfaction can build by providing high service quality to customers. In banking industry Thompson et al. (1982) study explained that strong relationship between banks and customers builds customer loyalty which give competitive advantage to banks. The practitioners believe that service quality can increase the performance of a firm (Grönroos, 1984; Kashif, Abdur Rehman, & Pileliene, 2016; Kyoon Yoo & Ah Park, 2007; RAHI, YASIN, & ALNASER, 2017; Rahi Samar, Mazuri Abd Ghani, & ALNASER, 2017). However, service quality and customer satisfaction interchangeable terms (Kyoon Yoo & Ah Park, 2007). Previous studies have suggested that service quality is positively associated with customer satisfaction in banking industry of Pakistan (Kashif et al., 2016; RAHI et al., 2017). Furthermore, considerable amount of work has been done in service industry in order to understand the dimensions of service quality and customer satisfaction (Chumpitaz & Paparoidamis, 2004; Pantouvakis, 2013; S. RAHI & M. A. GHANI, 2016). Rapid rise in financial sectors has provided alternatives to customers (Dhandabani, 2010). Service quality has played an important role in order to increase sales profit, market share, development of good image, and to provide competitive advantage (Dhandabani, 2010). However the measurement of service quality has become the most difficult task for organization. Following above arguments this study is measure impact of service quality on customer satisfaction and loyalty in banking context of Saudi Arabia. Therefore, three objectives are as follows:

1. To examine the condition of service quality in Islamic Banks of Saudi Arabia.
2. To analyze factors that led to customer satisfaction in Islamic Banks of Saudi Arabia.

3. To find mediating role of customer satisfaction between SERVQUAL and customer loyalty.

Despite the existing literature on service quality, fewer studies have been conducted on service quality that examine the customer satisfaction and customer loyalty in Saudi Arabia banking sector. To the best of researcher knowledge, up till now there is no such study that extended the SERVQUAL model with attitude. In this study, researcher used the modified model SERVQUAL and extended it with attitude in order to measure the customer satisfaction and customer loyalty of Saudi Arabia Islamic banking customers. SERVQUAL model was developed and tested in western culture consequently it cannot measure the service quality issues faced by developing countries (Raajpoot, 2004). Attitude is the second factor of theory of reasoned action (TRA) and measure the behaviors within human action. Thus, it is believed that to extend SERVQUAL model with attitude would be significant and provide a platform to discuss the service quality issues in Islamic banks of Saudi Arabia.

2. LITERATURE REVIEW

2.1. Service Quality in Banking

In last few decades, service quality has received a great attention from both academic and practitioners. Customer expectation's serves as a foundation of service quality. Additionally, it is assumed that high quality and performance exceeds expectation while low quality performance does not meet the expectation. In services marketing SEVEQUAL model has been used widely for measuring of service quality. Several researcher have been used SERVQUAL model for measuring of service quality in banking sector (Kashif et al., 2016; Marković, Jelena, & Katušić, 2015; S. RAHI & M. A. GHANI, 2016; Rahi Samar et al., 2017). Like other models SERVQUAL model was also criticised (Raajpoot, 2004). With passage of time SERVQUAL was extended by several researchers (Avkiran, 1999; Bahia & Nantel, 2000; Raajpoot, 2004).

2.2. Servqual

According to Zeithaml, Berry, and Parasuraman (1996) the measurement and achievement of service quality has been advantageous for the firm due to several reasons such as lower cost, customer loyalty and increased market share. Thus, for the measurement of service quality in Islamic banks of Saudi Arabia, this study have used the most popularised service quality model; SERVQUAL. The revolutionary SERVQUAL model was developed by Parasuraman et al. (1985). Initially the model was comprised with 10 dimensions, which further reduce to five dimensions. There are five core dimension of SERVQUAL model, namely tangibility, reliability, assurance, empathy and responsiveness. The key definition of these five dimensions as follows:

1. Tangibility is seen as appearance of physical facilities, equipment, personnel, and communication material (Parasuraman et al., 1985).
2. Reliability is defined as the ability to perform the promised service dependably and accurately (Parasuraman et al., 1985).
3. Assurance is defined as the courtesy of employees and their ability to inspire trust and confidence (Parasuraman et al., 1985).
4. Responsiveness is defined as employee willingness to guide customers and look fully engaged while service is performed (Parasuraman et al., 1985).
5. Empathy is defined as employees pay full attention to customers during service delivery (Parasuraman et al., 1985)

These five dimensions have been used to develop a service quality model named SERVQUAL. Although the SERVQUAL model has been criticised by several researcher but it is still widely

used in service marketing (Marković et al., 2015). This scale has been extensively used by service marketing researchers in USA and European countries. In banking context Cai, Zhang, Kumar, and Wyman (2014) have employed SERVQUAL model to investigate service quality of Malaysian banks. Raajpoot (2004) has extended the SERVQUAL model in cultural context and incorporated three dimensions of SERVQUAL model named; tangibility, reliability, and assurance in newly developed PAKSERV model. Several studies has proved significant relationship of SERVQUAL relationship with customer satisfaction and customer loyalty (Kashif et al., 2016; Marković et al., 2015). Keeping these contribution in mind the following hypothesis are proposed:

H1: Tangibility is significantly influence on customer satisfaction
H2: Reliability is significantly influence on customer satisfaction
H3: Assurance is significantly influence on customer satisfaction

2.3. Attitude

Behaviour intention is defined as consumer readiness and likelihood to use mobile commerce services (Peña & Brody, 2014; Ajzen, 1991). In this study, behavior intention is the only dependent variable. Prior studies identified many factors that might affect behavior intention. Ajzen and Fishbein (1980) in their theory of reasoned action (TRA) suggested that both attitude and subjective norms are capable of affecting human behavior intention. According to the TRA, attitude consists of attitudinal beliefs about the consequences of performing the behavior weighted by one's valuation of the consequences (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Meanwhile subjective norm is defined as "the person's perception that most people who are important to him or her think he should or should not perform the behavior in question" (Fishbein & Ajzen, 1975), Thus, the following hypothesis is proposed.

H4: Attitude is significantly influence on customer satisfaction

2.4. Customer Satisfaction

Satisfaction is attributed to a customer's feelings of happiness when his/her expectations met by the service provider. In service management literature customer satisfaction can be defined as being a summary of cognitive and affective reaction to a service incident or to a long-term service relationship (Lee, Kim, Ko, & Sagas, 2011). According to Ueltschy, Laroche, Zhang, Cho, and Yingwei (2009) customer satisfaction is the response of the customer who evaluate his or her prior expectations and actual performance of the product/service. Globally, customer satisfaction has been considered a powerful intangible asset for competitive advantage (Ueltschy et al., 2009). In other words customer satisfaction or dissatisfaction in services marketing is result of the customer's expectation encounters with a service quality. The customer's life time loyalty with the service offered depends heavily on their satisfaction (Oly Ndubisi, 2007). Service quality has been identified as key strategy for increased level of customer satisfaction (Lee et al., 2011). It is said that both customer satisfaction and service quality perception positively impact the repurchase intention of the customer (Lee et al., 2011; Oliver, 1997). Marković et al. (2015), clarified that service quality influence on customer satisfaction and customer loyalty. Thus, the following hypothesis is proposed.

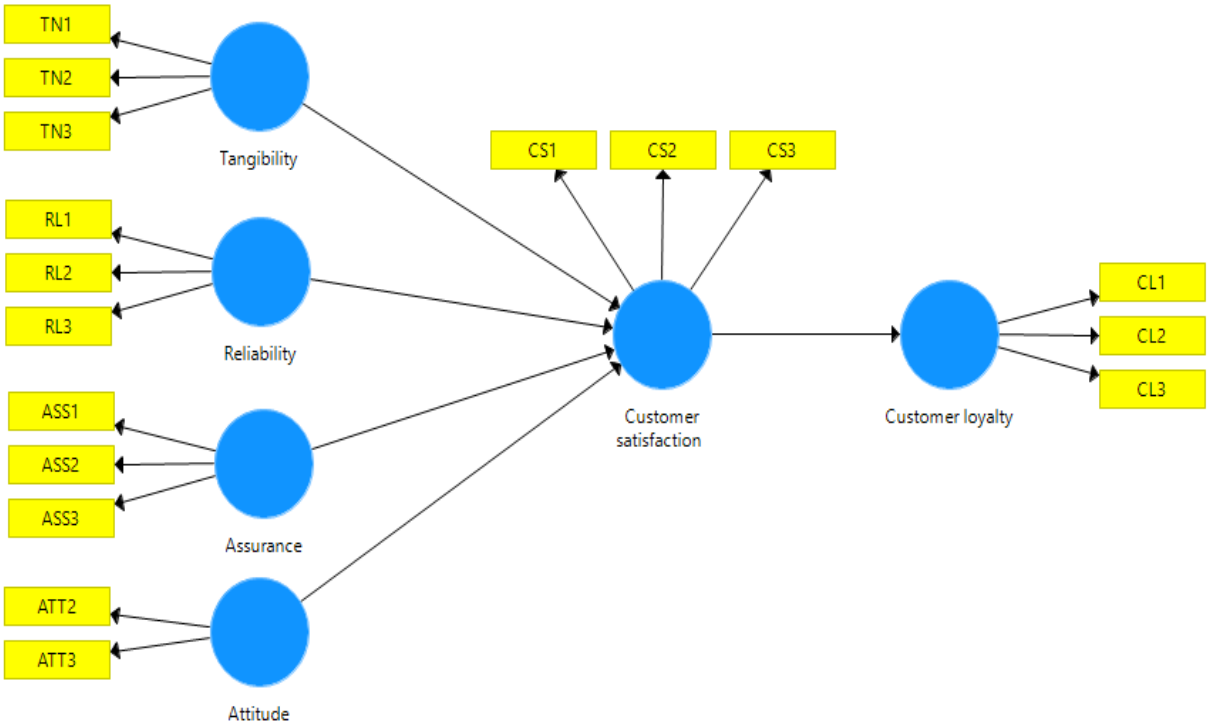
H5: Customer satisfaction is significantly influence on customer loyalty

2.5. Customer Loyalty

Service quality is an effective tool to keep customers loyal to the bank. According to Baumann, Elliott, and Hamin (2011), loyalty is an attitude as well as specific behavior. Customer loyalty has been an important element to increase firm profitability (Oliver, 1997). Customer loyalty has been defined as; "a deeply held commitment to re-buy or re-patronize a preferred product consistently in the future situational influences and marketing efforts that might cause switching

behavior" (Oly Ndubisi, 2007). Regardless of the service quality measurement, it is evident that service quality influences customers' perceived value, satisfaction, and loyalty (Marković et al., 2015). The behavioural loyalty reflects customer's positive response to purchase a particular product or service (Amin, Isa, & Fontaine, 2013; Rahi, 2015; Samar Rahi, 2016; S. RAHI & M. A. GHANI, 2016). The customers who are loyal with banks spend much more than other customers (Amin et al., 2013). Several studies confirmed that loyalty in banking sector have attributed as function of customer satisfaction (Amin et al., 2013; Ladhari, Ladhari, & Morales, 2011). Thus, the following theoretical framework is proposed.

Figure 1: Theoretical Framework



3. METHODOLOGY

The study has planned to examine service quality in Islamic banks of Saudi Arabia by extending SERVQUAL model with attitude and customer satisfaction. Bear in mind the criticism on SERVQUAL model, researcher used the three dimensions of SERVQUAL model as suggested by (Raajpoot, 2004). A survey-based research design employed to achieve the objective of the study.

3.1. Instrument Development

The survey had two parts. The first part comprised on dimensions of SERVQUAL model, attitude, customer satisfaction and customer loyalty. The three dimensions of SERVQUAL model had 9 items and adapted from previous developed scale by A. Parasuraman, Zeithaml, and Berry (1988). The attitude consisted of 2 items adopted from previous study by Samar, S., Ghani, M., & Alnaser, F. (2017). Customer satisfaction consisted of 3 items adapted from Sayani (2015) . Lastly, 3 items of customer loyalty adopted from RAHI et al. (2017). All the items anchored on a 7-point Likert scale "1= strongly disagree to 7 strongly agree)". The second part comprised of respondent demographics such as age, gender and education.

3.2. Survey Design and Sampling

The context of the study was Islamic Banks of Saudi Arabia. The survey was self-administered for collect the data of Islamic bank customers located in the city of HafarAlbatin, Saudi Arabia. Before conducting the survey, researcher took the permission from manager to collect the data inside of bank. Convenience sampling method was used in this study. Convenience sampling defined as a process of data collection from population that is close at hand and easily accessible to researcher (Rahi, 2017). According to J. F. Hair (2003) illustrated that convenience sampling allows researcher to complete interviews or get responses in a cost effective way. Thus, for data collection researcher personally visited AL Rajhi Bank and requested to customers to fill the questionnaire. The required sample size was 500. A set of 600 structured questionnaires were distributed out of 500 useable responses were received from customers of Islamic Banks.

3.3 Respondent's Profile

Table 1 summarised the demographics of the sample selected to achieve the purpose of this study. Males were (100%) because the researcher cannot visit the female branches as a restriction and the cultural of local community. The age of the respondents 34.0% is for less than 20 years old, 36.4% that counts at age between 21 to 30 years, 19.2% for 31 to 40years and 10.4% respondents aged 41 to 50. Furthermore, Table 1 also depicted that education of the respondents 3.0% respondents were having high school education, 8.2% from those who has diploma, 11.6% respondents who has bachelor degree, 49.4% master level education while there were 27.85 respondents were with PhD degree.

Table 1: Demographic Profile of the Respondents

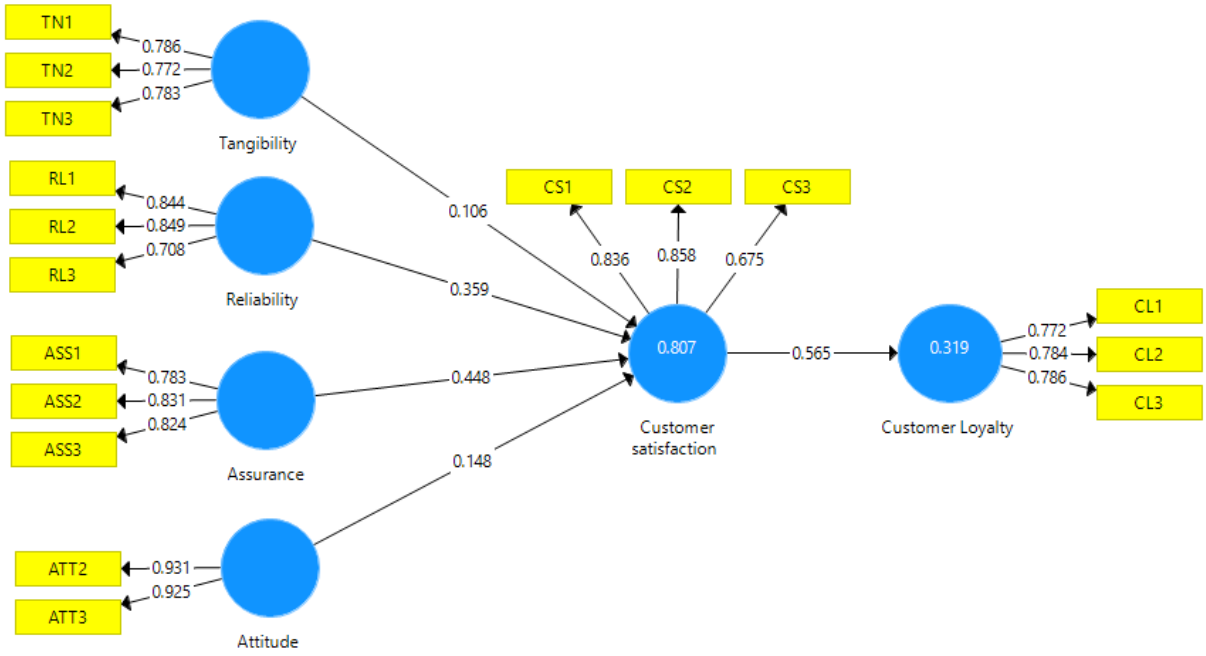
Demographic Characteristics	**Frequency**	**Percentage (%)**
Gender		
Male	500	100.0
Age		
Less than 20 years	60	12.0
21-30 years	227	45.4
31-40 years	113	22.6
41-50	100	20.0
Education		
High School and Below	18	3.6
Diploma	82	16.4
Bachelor	253	50.6
Master	106	21.2
PhD	41	8.2

3.4. Measurement Model

To examine the research model Partial Least Square (PLS) analysis technique was employed by using the SmartPLS3.0 software Ringle, Wende, and Becker (2015).In an effort to refine all structural equation model two-stage analytical procedure was employed ,where researcher tested the measurement model and structural model recommended by F. Hair Jr, Sarstedt, Hopkins, and G. Kuppelwieser (2014). Prior to structural modelling study has to assess the measurement model of latent construct for their dimensionality, validity, and reliability by going through the process named as confirmatory factor analysis (RAHI et al., 2017). Cronbach's (α) and Composite Reliability is also tested as recommended by Henseler, Ringle, and Sinkovics (2009). Furthermore in order to check the validity of the constructs convergent and discriminant validity was also examined.

Convergent validity of measurement model is usually ascertained by examining the factor loading, average variance extracted and compost reliability (J. F. Hair, Black, W. C., Babin, B. J., Anderson, R. E. & Tatham, R. L. , 2010; Rahi, 2017). Figure 2 shows the results of factor loadings as recommended by Chin (1998) threshold level of 0.6. All the values were above than 0.6 that shows the convergent validity of the model.

Figure 2: Measurement Model



3.4.1. Convergent Validity

According to Fornell and Larcker (1981) convergent validity is measured through estimation of average variance extracted (AVE) and it must be greater than 0.5. The average variance extracted depicts the amount of variance in the indicators accounted for latent construct. Furthermore, Table 2 depicted composite reliability (CR) degree where the construct indicator represent the latent construct, values exceeded 0.7 recommended by J. F. Hair, Black, W. C., Babin, B. J., Anderson, R. E. & Tatham, R. L. (2010).

Table following on the next page

Table 2: Results of Measurement Model

Constructs	**Loading**	**(α)**	**CR**	**AVE**
Assurance	**ASS**	**0.747**	**0.854**	**0.66**
Islamic Banks offer financially safe investment	0.783			
Employees of Islamic Banks are courteous	0.831			
Employees of Islamic Banks have appropriate knowledge	0.824			
Reliability	**RL**	**0.719**	**0.844**	**0.645**
Employees of Islamic Banks fulfil their promises	0.844			
Service specifications are followed by Islamic Banks	0.849			
Islamic Banks deliver error-free services	0.708			
Attitude	**ATT**	**0.838**	**0.925**	**0.861**
In my opinion, it is desirable to use the banks services.	0.931			
Using bank's W is a pleasant experience.	0.925			
Customer Satisfaction	**CS**	**0.701**	**0.835**	**0.63**
Assuming your entire experience with the Islamic Banks, you are satisfied	0.836			
In general, your satisfaction level related to current Islamic Bank that you are dealing with is high	0.858			
The Islamic Banks exceed your expectations in offering quality services	0.675			
Tangibility	**TN**	**0.699**	**0.824**	**0.609**
The tools and equipment used by Islamic Banks are modern	0.786			
The facilities offered by Islamic Banks are attractive	0.772			
The communication material of Islamic Banks is easy to understand	0.783			
Customer Loyalty	**CL**	**0.697**	**0.824**	**0.61**
I would like to revisit my Islamic Bank that I have already dealt with	0.772			
I recommend my family, friends and relatives to visit the Islamic Bank that I am already dealing with	0.784			
I will spread positive word-of-mouth about my Islamic Bank and its high quality of services	0.786			

3.4.2. Discriminant Validity

Discriminant validity is the degree where items differentiate among constructs and measures distinct concepts Fornell and Larcker (1981). The discriminant validity of the instruments was examined by following Fornell and Larcker (1981) .Table 3 showed that the square root of the AVE as showed in bold values on the diagonals were greater than the corresponding row and column values that indicates the measures were discriminant in this study.

Table 3: Discriminant validity of Measurement Model

Constructs	**ASS**	**ATT**	**CL**	**CS**	**RL**	**TN**
Assurance	0.813					
Attitude	0.605	0.928				
Customer Loyalty	0.555	0.374	0.781			
Customer satisfaction	0.827	0.646	0.565	0.794		
Reliability	0.635	0.475	0.419	0.766	0.803	
Tangibility	0.584	0.537	0.657	0.625	0.496	0.781
Note: Bold values indicate the square root of AVE of each construct						

3.4.3. Cross Loading

Discriminant validity can be measured by examining the cross loading of the indicators Hair Jr, Hult, Ringle, and Sarstedt (2016). It can be done by comparing an indicator's outer loadings on the associated constructs and it should be greater than all of its loading on the other constructs RAHI et al. (2017). Table 4 depicts that all the items measuring a particular constructs loaded higher on that construct and loaded lower on the other constructs that confirms the discriminant validity of the constructs.

Table 4: Loading and Cross Loadings

Items	Assurance	Attitude	Customer Loyalty	Customer satisfaction	Reliability	Tangibility
ASS1	0.783	0.381	0.368	0.532	0.455	0.379
ASS2	0.831	0.704	0.486	0.777	0.516	0.467
ASS3	0.824	0.337	0.481	0.668	0.571	0.566
ATT2	0.508	0.931	0.335	0.612	0.446	0.489
ATT3	0.617	0.925	0.359	0.586	0.436	0.509
CL1	0.546	0.413	0.772	0.548	0.354	0.434
CL2	0.34	0.195	0.784	0.363	0.321	0.59
CL3	0.351	0.201	0.786	0.352	0.291	0.553
CS1	0.747	0.443	0.505	0.836	0.573	0.683
CS2	0.718	0.666	0.5	0.858	0.548	0.469
CS3	0.476	0.42	0.319	0.675	0.74	0.301
RL1	0.452	0.29	0.275	0.612	0.844	0.41
RL2	0.398	0.416	0.287	0.626	0.849	0.295
RL3	0.681	0.437	0.449	0.603	0.708	0.49
TN1	0.387	0.272	0.642	0.403	0.35	0.786
TN2	0.374	0.27	0.618	0.373	0.293	0.772
TN3	0.552	0.608	0.365	0.614	0.469	0.783

3.5. Structural Equation Model

After achieving measurement model the hypothesis were tested by running a bootstrapping procedure with a resample of 1000, as suggested by F. Hair Jr et al. (2014). Table 5 shows the hypothesis results, it can be seen that all five hypotheses have significance relationship with their respective dependant variables. The relationship between assurance to customer satisfaction is supported by H1: ($\beta = 0.448$, $t = 9.631$, $p < 0.001$). Next to this the relationship between attitude to customer satisfaction is significant by H2: ($\beta = 0.148$, t 4.259, $p < 0.001$). The relationship of H3 showed that customer satisfaction is positively related to customer loyalty by ($\beta = 0.565$, $t = 16.799$, $p < 0.001$). Similarly, the relationship between reliability to customer satisfaction is supported by H4: ($\beta = 0.359$, $t = 9.478$, $p < 0.01$). Finally, the results of H5 where tangibility is supported by customer satisfaction by ($\beta = 0.106$, $t = 3.55$ $p < 0.001$). Thus, all hypotheses are significant. Furthermore, the effect size was also measured with R^2. The R^2 for customer satisfaction was 0.807 and for customer loyalty 0.319, which is acceptable based on the cut-off suggested by (Cohen, 1988).

Table 5: Results of Structural Model Analysis (Hypothesis Testing)

Hypothesis	Relationship	B	S.E	t-value	P-value	Result
H1	ASS -> CS	0.448	0.047	9.631	***	**Significant**
H2	ATT -> CS	0.148	0.035	4.259	***	**Significant**
H3	CS-> CL	0.565	0.034	16.799	***	**Significant**
H4	RL-> CS	0.359	0.038	9.478	***	**Significant**
H5	TN-> CS	0.106	0.03	3.55	***	**Significant**
Note: Significance level where, *p < 0.05, **p < 0.01, ***p < 0.001.						

4. DISCUSSION

The service quality dimension proposed in this study found significant with respective endogenous variable. The result of reliability, tangibility and assurance is related to previous study conducted by (Yalley & Agyapong, 2017). Supporting with previous argument that the service quality dimensions named reliability, assurance and tangibility are considered as universal service quality dimension (Yalley & Agyapong, 2017). This study found that reliability, tangibility and assurance have significant relationship with customer satisfaction. As the purpose of this study was to integrate the SERVQUAL model with attitude, and findings revealed that attitude has significant relationship with customer satisfaction. The Saudi Arabia region is different to west thus, it is confirmed that attitude played important role in measuring of service quality in Islamic banks of Saudi Arabia. Lastly, the relationship between customer satisfaction and customer loyalty have found significant and results also supported by (Kitapci, Taylan Dortyol, Yaman, & Gulmez, 2013; Raajpoot, 2004; Rahi, 2015).

5. CONCLUSION

Several studies have been conducted to investigate the service quality issues in banking sector in different context. Therefore, current research has two major contributions. First, this study tested the universal SERVQUAL dimension named assurance, tangibility and reliability in Islamic banks of Saudi Arabia. Second, this study also extended the SERVQUAL dimension with attitude in ARAB region such as Saudi Arabia. The newly proposed model collectively impact on customer satisfaction with 70% variance and 33% variance on customer satisfaction to customer loyalty. Thus, this study confirmed a new model that reflects on Arab culture with addition of Saudi Arabia people attitude.

6. LIMITATIONS AND RECOMMENDATIONS

SERVQUAL model has been extended by different researcher however, cultural aspects was ignored in most of these studies (Raajpoot, 2004). Future research may conduct with addition of other cultural dimension such as image and perception. This study has collected the data from one Islamic bank of Saudi Arabia excluding female. In Future researcher should increase the number of Islamic banks and the sample of respondent should represent a great diversity to investigate the possible difference of customer's behaviors.

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PROCESS AND PRODUCT ECO-INNOVATION IN THE PRACTICE OF THE COMPANIES INCLUDED IN THE RESPECT INDEX

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ABSTRACT

The aim of the study is to identify and assess eco-innovative activities within the companies listed on the Warsaw Stock Exchange. The research is limited only to these companies which are reflected in the RESPECT Index, i.e. the scope of the analysis encompasses mostly manufacturing industries and financial sector companies. In the first case, the paper focuses on eco-innovation in the area of: products/services, organization and marketing. What is especially important, the research took into account only the differences between manufacturing industries and financial sectors. This differentiation implies adequate research approaches and the selection of appropriate methods. In the case of the manufacturing industry, the analysis was based mainly on two research methods, namely survey analysis, digital and documentary source analysis. In the case of the financial sector, the study was based mainly on desk research as well as digital and documentary sources analysis, whereas survey data analysis was used as a supplementary method.

Keywords: *eco-innovation, eco-innovation output, environmental care, measuring eco-innovation, Respect Index*

1. INTRODUCTION

Eco-innovation is unquestionably a key driver of industrial efforts to challenge the climate change and implement the "green growth" assumptions in the post-Kyoto age. In this case eco-innovations have become the driving force for a faster introduction of breakthrough technologies and application of available solutions including non-technological ones. Most OECD countries have already introduced or developed national strategies to support eco-innovations. Still, eco-innovation has been an elusive concept and for almost 20 years it has been difficult to define it. In general terms, it has been defined so far as a specified concept with a positive impact on the environment. This impact can influence different dimensions and in this case it can be associated with various concepts, such as cleaner production, eco-design or eco-efficiency.

The research objective is to identify the facets of the companies included in the RESPECT index in terms of eco-innovations. Eco-innovation is closely related to the conventional understanding of innovation which, according to the OSLO Manual, "is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practice". Later on this definition was adjusted strictly to the ecological con-text. "Eco innovation can be generally defined as innovation that results in the reduction of environmental impact, no matter whether or not that effect is intended". On the basis of the existing innovation and eco-innovation literature (Olso Manual 2005; Kemp, R., & Pearson, P: MEI Project 2007; Reid and Miedzinski 2008; MERIT et al. 2008) proposed by the OECD, in 2009 all the activities could be analyzed according to the three dimensions (OECD 2009):

- Target (the focus areas of eco-innovations: products, processes, marketing methods, organizations and institutions).
- Mechanisms (the way in which changes are made in the targets: modification, redesign, alternatives and creation).
- Impacts (effects of eco-innovation on the environment).

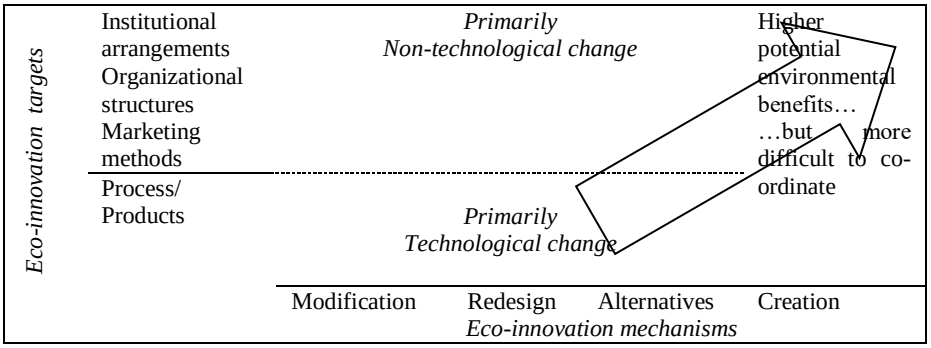


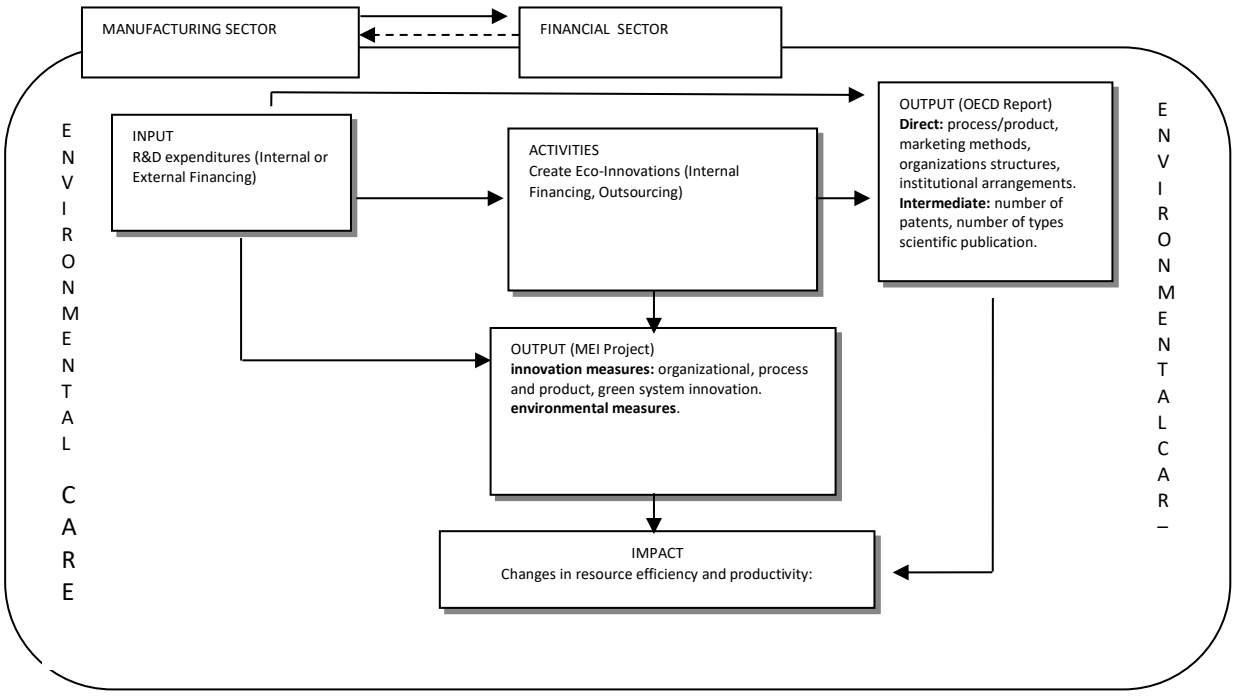
Figure 1. The typology of eco-innovation, source: Eco-Innovation in Industry, Enabling green growth, OECD Innovation Strategy, OECD 2009, pp. 46.

The target can be generally associated with its technological or non-technological nature. Process and products have overweighed technological nature. In some publications eco-innovation of process and product nature are divided into curative and preventive. The former refers to such eco-innovations as e.g. cars that are more fuel-efficient whereas the later to cleaner production technologies. Organizational structures, marketing methods and institutional agreements are of non-technological nature, e.g. closed-loop production or live – cycle thinking. These two mentioned above are relatively new areas in the innovation literature and were covered in the third and the latest revision of the Olso Manual 2005 (OECD 2009). Institutional eco-innovations do not have to refer directly to ecological activities, however, they facilitate the changes of a social character (Rennings 2000). The concept of institutional eco-innovations generally concerns a wide spectrum of changes starting from social norms, cultural values and finishing on legal regulations. Therefore, the division into endogenous and exogenous eco-innovations is applied (Ven and Hargrave 2002; Aoki 2007). In other words, they can be classified as formal and informal institutional activities. Eco-innovation in informal institutions refers to a change in value-based patterns, beliefs, norms that allowed to improve environmental conditions, for instance, by shifting transportation habits through in-creasing the use of bike transportation. Formal institutional eco-innovation refers to structural changes which rely on legal enforcement, international agreements or multi-stakeholders arrangements.

2. RESEARCH METHODOLOGY

The companies listed within the RESPECT Index have a high rate of social responsibility. The process of qualifying a given company into this Index is preceded by a detailed analysis. The exacting requirements imposed on candidate companies can be illustrated by the fact that only 24 out of 140 potential candidates were finally qualified into the Index . The selection process consists of three stages and the assessment of environmental activities is based on different criteria depending on the sector a given company belongs to, e.g. industrial, financial, or services. Such an approach is also visible in the subject matter literature where companies' peculiarities are emphasized and, at the same time, the discrepancies in measuring inputs on eco-innovations (OECD 2009; Jeucken 2004). In order to achieve previously indicated purpose of the study, a set of research methods has been developed which include literature overview, survey method and the analysis of internet websites content as well as comparative analysis. The first of the mentioned methods was meant to be a selection tool for a proper research approach and determining its theoretical basis. The in-deep analysis was aimed at collecting primary data concerning innovative activities of selected companies, including eco-innovative ones. Finally, thanks to the content analysis of internet websites, it was possible to check and assess the message particular companies convey while referring to environmental activities, in particular a type of published information according to the criteria specified for the purpose of the research. Figure 2 presents the process of measuring eco-innovation divided by two main sectors.

Eco-innovation can be measured by using the following categories of data, i.e. the data based on "input", "activities", "output" and "impact". The input of manufacturing companies results to a great extent from R&D expenditure, R&D personnel, other innovation expenditure such as intangibles. In the case of financial and service sector the expenditure on R&D, though does exist, still does not have such a huge importance to eco-innovativeness assessment. Thus, this assessment may refer only to a certain type of activity such as the creation and adaptation of new financial products made by the company's own resources or outsourced. Also, one criteria of measurement cannot be used to assess eco-innovation input for these groups of business entities. Current research concerning eco-innovation seems to concentrate on output measures. It may be well shown by the classification of eco-innovation according to the MEI Project, which is based on the criteria of innovation purpose. The attention here is put on direct output of eco-innovation process (see Table 1). In the MEI Project two measures are combined together (which previously have never been joined), i.e. the measures of innovativeness and environmental ones. The paper herein uses the MEI Project methodology as a supplementation of the research proposed by the OECD Report with reference to direct out-put, whereas intermediate outputs were assessed just like those proposed by the OECD Report. Combining the measurements in the case of the companies included in the Respect Index results from the fact that the Polish market is still at an early stage of development in terms of the eco-innovation analysis, hence in order to avoid problems with heterogeneous data, the efforts were made to make the assessment process as transparent as it was possible (see Figure 1).



Source: the author's own analysis based on OECD, 2009 and MEI Project, 2007.
Figure 2. Process of measuring eco-innovation, source: the author's own analysis based on OECD, 2009 and MEI Project, 2007.

Table following on the net page

Table 1 . Eco-innovation measures according to MEI Project

Main measures	Detailed measures
Innovation measures	
Organizational innovation	• pollution prevention schemes • environmental management and auditing systems • chain management
Product and service innovation	• new or environmentally improved material products • green financial products • environmental services • services that are less pollution and resource intensive
Green system innovation	• alternative systems of production and consumption that are more environmentally benign than existing systems
Environmental measures	
Environmental technologies	• Pollution control technologies • Cleaning technologies • Cleaner process • Waste management equipment • Environmental monitoring • Green energy technologies • Water supply • Noise and vibration control

Source: Kemp & Pearson (2007), p.10.

3. RESULTS

The Table below presents the research results. The analyzed companies were put into certain categories pursuant to the taxonomy used by the Global Industry Classification Standard (GICS).

Table following on the next page

Table 2. Outputs in companies in Respect index according OECD Report and MEI Project.

Sector	Company	Outputs		
		Direct	Intermediate	
			patents	*scientific publication*
Energy	PKN ORLEN	IM (GSI), ET (GET, EM, CT)	Yes	Yes
	PGE	IM (GSI), ET (GET, EM, CT)	No	No data
	PGNIG	ET (WME)	No	No data
	ENERGA	IM (GSI), ET (GET, CT)	Yes	Yes
	TAURON	IM (GSI), ET (GET, CT)	Yes	No data
	LOTOS	IM (OI, CT)	Yes	No data
	JSW	ET (CT)	Yes	No data
Finance	BZ WBK	IM (PSI)	No	No data
	PZU	-	No	No data
	ING BSK	IM (PSI)	No	No data
	HANDLOWY	IM (PSI)	No	No data
	MILLENNIUM	IM (PSI)	No	No data
	GPW	-	No	No data
	BANK BPH	IM (PSI)	No	No data
Health Care	PELION	IM (OI, GSI)	Yes	No data
Industry	BOGDANKA	ET (EM, CT)	Yes	No data
	BUDIMEX	ET (CT)	Yes	No data
	APATOR	ET (CT)	Yes	No data
	ELEKTROBUDOWA	ET (CT)	Yes	No data
	RAWLPLUG		No	No data
Materials	KGHM	ET (CT, WME)	Yes	Yes (project)
	GRUPA AZOTY	PSI, ET (CT, WME)	Yes	Yes
Telecommunications	ORANGE	CT	Yes	No data
Utilities	KOGENERACJA	EM (GET)	Yes *	No data

Sources: the authors' own analysis

IM - Innovation measures (OI – organizational innovation, PSI – product and service innovation, GSI – green system innovation), EM – environmental measures – ET - environmental technologies (GET –Green Energy Technologies, WME – Waste Management Equipment, EM – Environmental Monitoring, CT – Cleaner Technologies)

The companies encompassed within Energy, Industry and Materials sectors indicate the greatest expenditure on environmental technologies. However, it does not result from their special pro-ecological approach but rather the necessity to manage environmental risk. These technologies include both obtaining energy from renewable sources and effective waste management (their recycling). The companies from the materials sector deserve a huge attention since they allocate a lot of money on R&D and may pinpoint numerous environmental innovations of a technological character (KGHM, GRUPA AZOTY). Their participation in research projects is clearly visible making the cooperation with research groups possible. An excellent example of such an activity is a commonly signed declaration between PZU and Azoty Group to support common R&D projects. Azoty Group is obliged to allocate 1% of its income on R&D (generally on innovations including environmental ones). The companies included in the Financial sector are active in product and service innovations. It may be illustrated by the introduction of numerous ecological products/services into the regular sale practice, however, none of the analyzed companies included in the financial sector showed exceptionally high activity in this area. As far as the category - intermediate - patents is concerned, the companies from Energy, Industry and Materials sectors hold an advantage over other companies. Even though these patents come from different periods, still a huge activity of these companies is clearly visible.

The KOGENERACJA Company is an interesting example here which presents a high level of eco-innovation confirmed by obtained patents. The conducted analyses also show that the analyzed companies did not cooperate with academic communities to a great extent and usually it was connected with publishing research results of commonly introduced projects, of incidental character though. The Figure below presents eco-innovation examples according to the typology presented in Fig. 1.

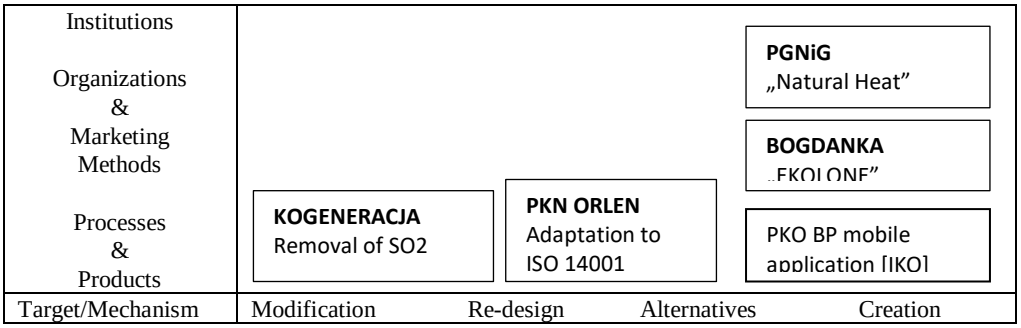


Figure 3. Mapping activity focus of eco-innovation, sources: the authors' own analysis

4. CONCLUSION

The level of ecological activities, including eco-innovations, in the companies listed in the Warsaw Stock Exchange and qualified into the RESPECT Index is insufficient when compared with the guidelines given by the OECD or the research conducted by many scientists in this area. It is characterized by low expenditure on R&D, too few patents or academic publications. Ecological solutions of technological character outweigh other innovations. It probably results from the obligation companies have to adjust their businesses to the legally binding regulations. No funds spent on R&D in terms of ecology result in too low innovativeness of Polish enterprises. It should be emphasized that the analyzed companies belong to the leading group of companies in the Polish economy. The process of making them public as such puts them in the leading position of such companies which are assessed according to higher criteria of, e.g. corporate governance. Additionally, all analyzed companies were chosen to be included in the RESPECT Index as those with a special sensitivity to social and environmental issues.

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ASSESSMENT OF GLOBAL COMPETITIVENESS: METHODOLOGY AND ITS IMPLICATION FOR EU AND EEU

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ABSTRACT

One of key issues of any government is ensuring high living standards for its citizens and maintaining it. The implementation of this issue depends on labour productivity, quality of goods and services produced within the given country, as well as the efficiency of production and regulation processes. The issue of maintaining sustainable economic growth and continuously improving country's national competitiveness are strongly interrelated. Competitiveness is a multidimensional and dynamic category, which is the main driver force of market economy and economic development. Competitiveness is defined as the ability of a firm, an economic sector or the entire economy to have sustainable development, high levels of wages and income, economic welfare and at the same time, stay open for international markets. Recent developments of international economic relations and especially increasing interdependence of economies, formation and development of financial and commodity markets raise the imperative of improving an economy's international competitiveness. The need to study economic competitiveness is closely related to the country's economic development and living standards of the population; thus is considered to be one of the main dimensions of the country's economic policy. Many international organizations, research groups, as well as individual researchers analyse the issues of assessment and improvement of the level of international competitiveness. There are various approaches in assessment of the level of competitiveness (i.e. Global Competitiveness index, IMD World competitiveness yearbook, The Harvard Institute's assessment of competitiveness for International Development (HIID), etc.). Meanwhile, there is not a single definition of international competitiveness and a comprehensive framework of indicators, which determine the given phenomena. The idea of this paper is to develop a new methodology that will include as many indicators describing competitiveness as possible, to make thorough analysis and measure the level of international competitiveness in different countries. One of the outstanding features of the research is that it is useful for evaluating social, political or economic policies in a given country and its results can be applied in the process of policymaking. Another distinguishing advantage of the presented methodology is that it allows us to add more indicators to existing ones and make the research broader - depending on the purposes and given circumstances.

Keywords: *Competitiveness, framework, indicator, index, factor analysis, assessment, theory, factor, weighting coefficient, obstacles*

1. INTRODUCTION

The issue of determining the level of competitiveness of a national economy, as well as the need to improve the latter has even more aggravated after the crisis of 2008-2009. This period emphasises the need to develop a new methodology of assessment of international competitiveness. The new methodology might take into account all factors that influence on the ability of a country to produce goods and services that meet requirements of global markets, as well as could contribute to the improvement of wellbeing of a country's citizens'. That is why, it has become an imperative to evaluate and determine all factors that boost country's international competitiveness on the one hand, and the ones, that undermine the economy's competitive advantages and cause the decline of the level of the global competitiveness of the

latter on the other hand. As already mentioned, this paper focuses on the review of existing literature, to review different approaches of the measurement of global competitiveness, to identify some contradictions and to suggest an approach that avoids such contradictions. Our research suggests a method of analysis that integrates both concepts and links them to each other. It is an analysis of the sources of competitiveness, which measures competitiveness. The paper is organized by several sections; it starts with a short introduction of some diverging views of comparativeness, the second section mainly focuses on determining various concepts and components of competitiveness. Introduction of methodology follows the second section, the fourth section introduces the results of assessment and gives general recommendation for its further development.

2. INTERNATIONAL COMPETITIVENESS: LITERATURE REVIEW

The principle of competitiveness is one of the most important components of qualitative analysis, trying to assess a country's attractiveness and its engagement in global processes. The term came into use in the USA, in 1985. Giving a certain and clear definition to the term "competitiveness" is a controversial issue. In fact, neither scholars nor practitioners have settled upon an accepted definition[1]. Many scientists, politicians, economists and other theorists have created various concepts of the meaning, scope and evaluation of the level of international competitiveness. Thus, before taking a deep look at various methodological approaches of assessing the level of international competitiveness, let us review the existing scientific literature and different definitions of the given concept. One of the first observers of international competitiveness was Krugman P., who defines competitiveness as a concept equivalent of productivity. On the other hand, he claims that competitiveness is "wrong and dangerous definition" if to apply for the international level[2]. David P., Avery, Rapkin and William P. define competitiveness as "… a political and economic concept that affect military, political and scientific potential of the country and is an integral factor in the relative position of the country in the international political economy. [3]" Michael E. Porter proposes one of the most outstanding theories of international competitiveness and nations' competitive advantages. He argues that the phenomenon of competitiveness deals with the policy and institutions in the state that promotes long-term growth. "National competitiveness" corresponds to the economic structures and institutions of the state for economic growth within the structure of global economy[4]. Another outstanding definition states, that competitiveness "…refers to a country's ability to create, produce, distribute, and/or service products in international trade while earning rising returns on its resources"[5]. According to the viewpoint of Kulikov G. there is a differentiation of real and nominal competitiveness. The theorist states that real competitiveness requires openness and fairness of markets, the quality and innovation of products and services in the country of origin and the continued growth of life standard of its citizens. It can be inferred, that the actual degree of competitiveness is a possibility of national industries to have a free and fair market of goods and services that meet the requirements of both domestic and foreign markets, and simultaneous growth of real income. Since a particular government can achieve the nominal competitiveness policy, creating a macroeconomic environment for domestic producers through direct state subsidies and wage restraint.

[1] Sargsyan A (2017) Variety of Approaches in Assessment of Global Competitiveness. Int J Econ Manag Sci 6: 479. Doi: 10.4172/2162-6359.1000479, https://www.omicsonline.org/open-access/variety-of-approaches-in-assessment-of-global-competitiveness-2162-6359-1000479.pdf

[2] http://88.167.97.19/temp/Paul_Krugman_-_Competitiveness_A_dangerous_obsession.pdf

3 National Competitiveness in a Global Economy (Advances in International Political Economy) // by David P. Rapkin , William P. Avery (1995)

4 The Competitive Advantage of Nations // by Michael E. Porter, 1998

[5] Scott and Lodge, 1985, p. 3

Therefore, the real competitiveness is possible only if national companies are able to effectively design, produce goods and sell them at prices and quality that meets both external and internal customers' requirements – without direct subsidies, control of wages and unemployment[6]. Thus, the concept of competitiveness reflects the favorable position of the national economy in the global marketplace. They can achieve competitiveness in many areas, mainly in the field of international trade as the country's ability to strengthen this position. International competitiveness embodies the capability of the national economy to compete in many dimensions, i.e. economic, scientific, technological, organizational, managerial, marketing etc. With this regard, countries are considered to be more competitive if they are able to produce higher levels of income for their citizens, to achieve a higher level of the quality of life. In other words, competitiveness is the ability of a country to produce, promote and sell goods and services in the global economy. A more competitive economy is the one that is likely to grow faster over the medium to long run. Given this importance of maintaining competitiveness, governments of different countries targeted their policies towards becoming more competitive and gaining their niche in this globalized world. Thus, national governments' principal goal is to establish an environment that fosters wellbeing for its citizens by addressing health, safety, environmental issues and laws. Undoubtedly, this goal can be achieved through effective management and allocation of resources, and active political interventions. Therefore, it becomes imperative for governments to coordinate a comprehensive approach towards trade and investment that incorporates a competition orientation[7]. However, governmental bodies and decision makers must be cognizant of the fact that their nation's competitiveness depends upon their ability to sustain trade and attract foreign investment.

3. INTRODUCTION TO THE PURPOSED METHODOLOGY

The purposed methodology is based on the construction of composite index, which we named "The index of Competitiveness potential". It contains statistical data from different international data-sources (World economic forum, World Bank, Heritage foundation, etc.). The above-mentioned international organizations calculate indexes that are main indicators when assessing the level of competitiveness in an observed economy. Some of them contain country profile pages, with detailed information about each country, thus they become very useful for not only external users (researchers, investors, other countries, partners, etc.) but also for internal users (governmental bodies, low-makers, economic agents, etc.). Thus, the index of Competitiveness Potential includes the following components[8] (sub-indexes), which are described in the Table 1.

Table following on the next page

6 Management of Competitiveness: Theory and Practice: // by A. Chursin, Y. Makarov // Moscow, Russia, 2015, p.9

7 Feketekuty, 1996

8 For indexes, that do not have annual reporting, we have applied average indicators, for those countries, that have missing data for certain years, we have applied the method, called "similar objects", which enabled us to "…put objects according to well defined similarity rules." http://www.statsoft.com/Textbook/Cluster-Analysis

Table 1: The structure of the index of Competitive Potential
(Table ends on the next page)

#	Data Sources (Pillars)	Indicators
1	Global Competitiveness Index9	Institutions;
		Infrastructure;
		Macroeconomic environment;
		Health and primary education;
		Higher education and training;
		Goods market efficiency;
		Labour market efficiency;
		Financial market development;
2	Legatum Prosperity Index10	Economic Quality
		Business Environment
		Governance
		Education
		Health
		Safety & Security
		Personal Freedom
		Social Capital
		Natural Environment
3	Doing Business Index11	Starting a business
		Dealing with construction permits
		Getting electricity
		Registering property
		Getting credit
		Protecting minority investors
		Paying taxes
		Trading across borders
		Enforcing contracts
		Resolving insolvency
		Labor market regulation
4	Economic Freedom Index12	Property rights
		Judicial effectiveness
		Government integrity
		Tax burden
		Government spending
		Fiscal health
		Business freedom

[9]World Economic Forum, Global Competitiveness Report, 2017-2018 http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf

[10] The Legatum Institute, http://www.prosperity.com/data-explorer

[11] The World Bank, Doing Business Report, 2017, http://www.doingbusiness.org/~/media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB17-Report.pdf

[12] The Heritage Foundation, http://www.heritage.org/index/about

		Labor freedom
		Monetary freedom
		Trade freedom
		Investment freedom
		Financial freedom
5	Enabling trade index13	Domestic market access
		Foreign market access
		Efficiency and transparency of border administration
		Availability and quality of transport infrastructure
		Availability and quality of transport services
		Availability and use of ICTs
		Operating environment
6	Travel and tourism competitiveness index14	Business Environment
		Safety and Security
		Health and Hygiene
		Human Resources and Labour Market
		ICT Readiness
		Prioritization of Travel and Tourism
		International Openness
		Price Competitiveness
		Environmental Sustainability
		Air Transport Infrastructure
		Ground and Port Infrastructure
		Tourist Service Infrastructure
		Natural Resources
		Cultural Resources and Business Travel
7	Social Progress Index15	Nutrition and Basic Medical Care
		Water and Sanitation
		Shelter
		Personal Safety
		Access to Basic Knowledge
		Access to Information and Communications
		Health and Wellness
		Environmental Quality
		Personal Rights
		Personal Freedom and Choice
		Tolerance and Inclusion
		Access to Advanced Education

For conducting comparative analysis, we have calculated a new composite index, which has other indexes as its component sub-indexes.

[13] World Economic Forum, Enabling trade report 2016, http://reports.weforum.org/global-enabling-trade-report-2016/
[14] World Economic Forum, http://reports.weforum.org/travel-and-tourism-competitiveness-report-2017/
[15] https://www.socialprogressindex.com/definitions/BHN/0/0

The index of Competitiveness Potential is calculated as a weighted average of its sub-indexes. The index's scores range from 0 to 1 (with 1 indicating strongest potential to compete in global markets, the existence of effective economic, social, external policies, and 0 indicating the opposite situation and the lowest level of competitiveness, the absence of certain capacities to act in a global marketplace. As the first stage of our research, we have created a database of different index indicators that assess competitiveness. The database was created for countries of EU and EEU integration units, it includes data for 2013-2017. For the next stage of our research, we have conducted factor analysis with the help of the SPSS program. This enabled us to calculate weighting coefficients for the seven sub-indexes, representing their comparative importance in formatting the composite index of competitiveness potential. These coefficients represent the extent to which the given sub-index is useful for making thorough analysis and applying the results in practice, i.e. gives certain recommendations to policy-makers and global "players" to improve their activities and maintain their "niche" in the World Economy. It is important to mention, that we have calculated weighting coefficients of sub-indexes for each year separately (see table 2)

The index of Competitiveness Potential was calculated by using the following formula.

$$\boldsymbol{CP_{ind} = \sum_{i=1}^{n} w_i \times s_i}$$

Where

$\mathbf{CP_{ind}}$ – The composite index of Competitiveness potential

I=1;2;3;…..n – Component sub-indexes

$\mathbf{w_i}$ – each sub – index's weighting coefficient,

$\mathbf{s_i}$ – the score of the given country, according to the results of i = 1; 2; 3; … n sub – indexes

Thus, we have created a new index that is not limited in the number of included indicators and can be supplemented by additional indicators describing as many areas and indicators of international competitiveness and its separate dimensions as possible.

Table 2. The weighting coefficients of the sub-indexes of the Competitiveness Potential Index

Sub-Indexes	***2013***	***2014***	***2015***	***2016***	***2017***
Global Competitiveness Index	0.23	0.25	0.21	0.22	0.24
Legatum Prosperity Index	0.12	0.09	0.13	0.13	0.11
Doing Business Index	0.09	0.08	0.11	0.12	0.1
Economic Freedom Index	0.07	0.07	0.09	0.08	0.09
Enabling trade index	0.18	0.17	0.15	0.11	0.12
Travel and tourism competitiveness index	0.15	0.15	0.16	0.16	0.18
Social Progress Index	0.16	0.19	0.15	0.18	0.16

4. COMPETITIVENESS POTENTIAL INDEX: RESULTS

As already mentioned, we have calculated the CP index for 28 EU and 5 EEU countries. This enables us to compare levels of competitiveness in these two integration units, as well as define all factors influencing on their results. The CP Index was calculated for the period of 2013-2017. Thus, results of the research are presented below.

Figure following on the next page

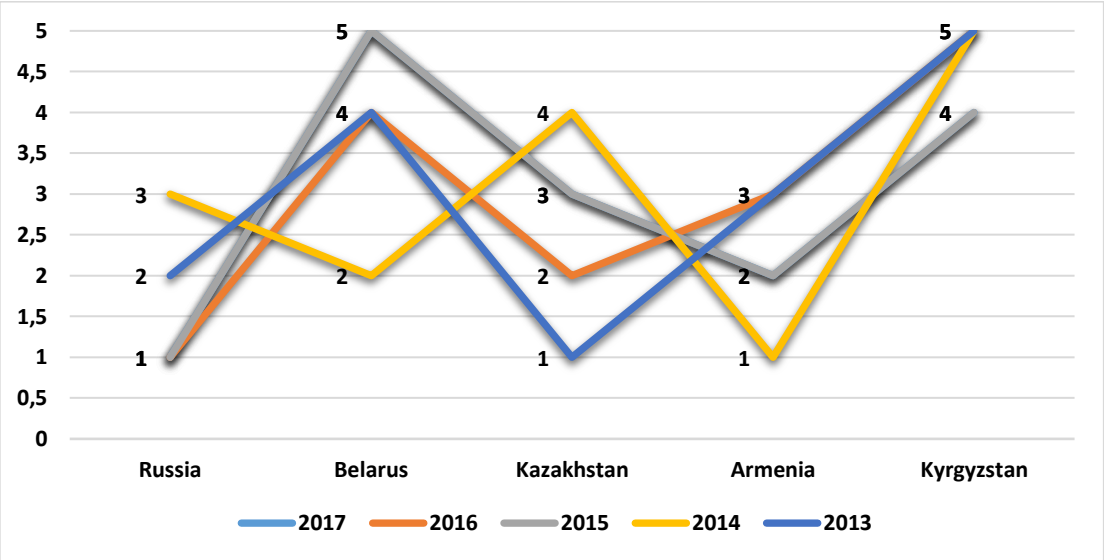

Fig. 1: CP Index for EEU member states, 2013-2017, ranks, out of 5

The results of our research show, that countries of the EEU have significantly implemented policies to improve their international competitiveness. Kazakhstan was the only country that has continuously improved its position, which, in turn, is the evidence of the competitiveness policy effectiveness. Ukraine and Belarus have the lowest levels of competitiveness potential. The same analysis have been conducted for EU member states.

Figure following on the next page

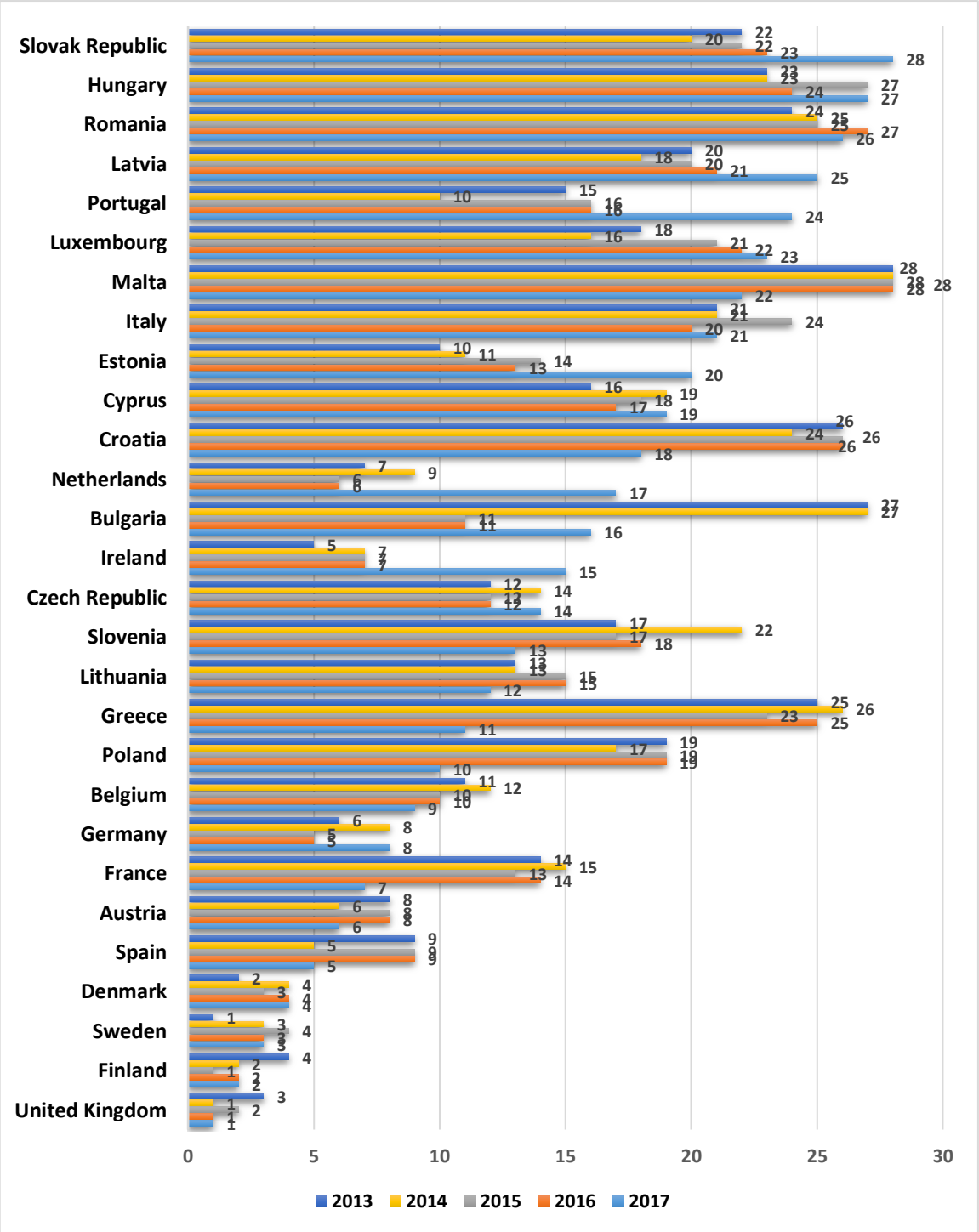

Fig. 2: CP Index for EU member states, 2013-2017, ranks, out of 28

As it can be inferred, main part of the observed countries have kept their place (levels of competitiveness) stable. Thus, we can conclude, that their policies toward maintaining the existing level of international competitiveness can be evaluated as satisfactory. Some countries (i.e. United Kingdom, Finland and Sweden) have improved their ranks. As the nest stage of this research, we have differentiated those factors that have a positive influence on the process of implementing reforms in EU and EEU member economies, and the ones that have a negative impact. In the scope of this paper, we have made detailed analysis only for 3 countries, wich were selected randomly (one country having high level of competitiveness, one with middle and one with a low result).

- United Kingdom: This country have improved its position for all years in the given period. Factors that have positively influenced on its competitiveness are health and primary education, technological readiness, foreign market size, etc. Factors, that have negative impact are government bureaucracy, policy instability, labor regulations, etc.
- Ireland: Positively influencing indicators are quantity/quality of education, makroeconomic environment, etc. Factors, which caused decline in Irland's competitive potential are innovation capabilities, financial market development and efficiency, etc.
- Romania: The level of competitiveness of Romania hadpositive shift due to foreign market size, competition in domestic markets, etc. Institutions and infrastructure, corruption and access to financing were causes of this country's low level in CP ranking.

The same method of analysing separate indicators can be applied for any country depending on certain circumstances.

5. CONCLUDING REMARKS

To sum up, international competitiveness reflects the soundness of government policy (both external and internal) and uts implementation, this phenomenon is of a vital importance in ensuring high living standards for a country's citizens.

As a condequence, based on the scientific and empiric results of our research, we can make the following conclusions:

1. International competitiveness is one of the qualitative determinants of the country's development, it gives an idea about its political, economic and social situation.
2. Assessing the level of competitiveness with help of integral index gives an opportunity to make comparative analysis with emphasis to separate indicators.
3. The Index of Competitiveness Potential will be the guidance to reveal which directions of competitiveness policy were implemented more effectively, as well as the ones with less efficiency for 2013-2017, to strengten all advantages and eliminate disadvantages.

Thus, we can conclude that this index can be very useful in analysis in different fields, and we have more important theoretical, methodological and empirical issue to include more indexes and indicators that partially reveal quantitative assessment of the level of international competitiveness in various areas.

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GOVERNANCE OF NON-ECONOMIC PUBLIC SERVICES IN THE REPUBLIC OF SLOVENIA

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ABSTRACT
Slovenian non-economic organizations are sui generis non-membership corporations, which provide non-economic public services (i.e. health, education, culture, sport, child-care, elderly-car etc.). These organizations are established, as public institutions (official legal form) owned by the state or a municipality. A corporate governance relationship between a public non-economic organization and the state or a municipality is implemented within the scope of the right of the public owners (i.e. the state or a municipality). State or municipality can directly appoint the majority of the members of the council of this institution and usually general manager. Due to their inability to directly manage the institution, the state or municipality transfers the authority to manage such to its members in the council of the institution, who exercise this power on their behalf. This applies to both state-founded and municipality-founded public institutions. In the article, the author summarises the relationships between the public-owner of a non-economic public organization (i.e. public institution) and the public institution's bodies (i.e. the council of the institution, the general director, and the expert council thereof) and proposes certain necessary changes to the relevant legal regulation.
Keywords: *non-economic public organizations, sui generis corporate governance, legal environment for business*

1. OUTLINE

A non-economic public organization is called in Slovenia public institution (Slov.: javni zavod). Public institution is a special legal entity established to provide non-economic public services (i.e. health; hospitals, education; schools, culture; theatres, child-care; kindergartens, elderly-car; homes for elder people etc.). Some contemporary aspects on the theory of legal institutions was generally presented in Slovenian legal literature first by V. Trstenjak in her book Legal Entities (Trstenjak, 2003), and as was later summarised and expanded by the author and R. Bohinc in the book Administrative Law – General Provisions (Bohinc, Tičar 2005). The author and I. Rakar partly elaborated the above-mentioned legal status of the public institution in the book Public Sector Law (Tičar, Rakar, 2011), and recently in the new university textbook Law of Public Administration (Rakar, Tičar, 2017). The concept of sui generis corporate governance (or special sort of governance) in non-economic public institutions derives from the presumption that publicly owned institutions are corporations. Due to economic reasons, a contemporary corporation is an artificially created legal person, while its founders are not liable for the corporation's obligations. Historically speaking American writer A. W. Machen (1910) connected the theoretical understanding of the concept of the corporation and the limited liability of a legal person for obligations. Today, in general context, corporations are understood to be fictitious legal persons whose liability for the obligations of their founder or founders is limited. Another American writer J. Dewey (1926) illustrated the connection between the concept of the corporation and limited liability for obligations, as he wrote about the historical background of the development of the corporate legal personality. He wrote (Dewey 1926; p. 657).: "The doctrine has been attributed to Pope Innocent IV, who seems at least to have helped spread the idea of persona ficta as it is called in Latin. In the early church, the doctrine of persona ficta allowed monasteries to have a legal existence that was apart from

the monks, simplifying the difficulty in balancing the need for such groups to have infrastructure though the monks took vows of personal poverty. Another effect of this was that as a fictional person, a monastery could not be held guilty of delict due to not having a soul, helping to protect the organization from non-contractual obligations to surrounding communities. This effectively moved such liability to individuals acting within the organization while protecting the structure itself, since individuals were considered to have a soul and therefore capable of being guilty of negligence and excommunicated." Slovenian public institution is a corporation established by either the state or a municipality and is intended for providing a non-commercial public service. In legal transactions, it acts through its bodies, especially individual members of its management (e.g. a director, principle, chancellor). Slovenian public institution acquires legal and contractual capacity following a final decision that it has been entered in the court register (Tičar, 2017). Certain legal entities are not entered in the court register, e.g. the state, municipalities, and the Slovenian Academy of Sciences and Arts. They are granted a legal personality by operation of the Constitution (e.g. the state) or by operation of law (ex lege).

2. HISTORY OF LEGAL REGULATION OF PUBLIC INSTITUTIONS IN EUROPE AND IN SLOVENIA

The term public institution (German: öffentliche Anstalt) first appeared in Austrian legal texts in the 18th century. In the Austrian general national law of 1794, the term is defined as (Jecht, 1963, p. 17): "[...] necessary institutes for maintaining public peace, safety, and order [...]." The term institution is used causally as a form of target-oriented activities of the state administration. In addition to the definition of a public institution, the term public utility enterprise (German: öffentliche Unternehmung) is still used as a synonym (Bohinc, 2012). Today, the regulation of public institutions in European countries varies considerably. The content thereof is largely based on the traditional regulation of carrying out such activities, so that a clear answer to the question of what the European regulation of providers of public services is cannot be given. There is also no uniform European legislation that would regulate the legal organisation of public institutions in terms of their organisational form. There is no aquis communatauire as regards the regulation of the institutions in terms of their organisational form, so this field is left to the Member States of the European Union. Today, in part of continental Europe – the part that is under the influence of the Germanic legal system – social activities (e.g. education, healthcare, and culture) are provided through public institutions. Public institutions are organisational forms that provide non-commercial goods or services intended for users. Institutions can be established as independent or non-independent institutions (German: unselbständige Anstalten). Independent institutions are legal entities of public law, while non-independent institutions do not have their own legal personality. Intermediate forms of institutions are also recognised, namely institutions that have a legal personality, however, such legal personality is limited to a certain extent. Regardless of the above-mentioned, neither Germany nor Austria has regulated public institutions with a systemic law. In lieu of a uniform law on public institutions, in both countries public service providers are instead regulated by laws that regulate a certain field (e.g. education); certain public institutions are also established on the basis of a special law when the public interest requires a specific regulation (e.g. the national television broadcaster ORF in Austria). Public institutions in Slovenia are regulated by the Institutes Act of 1991 (ZZ, 1991), which is already 26 years old. Until the adoption of this Act, the Yugoslav Associated Labour Act of 1976 ZZD, 1974 had regulated the organisation of legal entities in terms of their organisational form in the field of social activities). Despite its progressive nature at the time, the Institutes Act left a number of questions open, especially regarding the assets of public institutions that were ex lege nationalised and the question of the appropriate organisation of public entities that were, due to the short (i.e. six-month) transitional

period, left stranded in a relatively out-dated organisational form. Despite several attempts and drafts throughout the period after the adoption of the Institutes Act, a new institute's act has not yet been adopted.

3. CONTEMPOROARY LEAGAL FREMEWORK FOR GOVERNANCE OF SLOVENIAN PUBLIC INSTITUTIONS

The management structure of institutions is presented through an organic scheme determined by the Institutes Act (1991). Public institutions must have the following bodies: the council of the institution, a director, and a council of experts. However, these bodies can have different names or a different structure if a special act determines such. In such case, the rule lex specialis derogat legi generali applies, whereby the Institutes Act (1991) is lex generalis. For example: a special act, i.e. the Higher Education Act (2012) regulates that the rector is the director or manager of the university, the university council is the administrative board, and the senate of the university is the expert body. Article 20 of this law reads as follows: "The bodies of a university shall be: the rector, the senate, the administrative board, and the student council. The bodies of a university member shall be: the dean, the senate, the academic assembly, and the student council. The body of other institutions that are members of a university shall be the director and possibly the professional council. The bodies of a higher education institution that is not a university member shall be: the senate, the academic assembly, the administrative board, the student council, and the dean. Higher education institutions and other institutions that are members of a university may have other bodies in accordance with their charter or statutes." The composition of the council, the manner of the appointment or election of council members, the length of the council's term of office, and its powers are determined by law (according to the lex specialis rule) or the memorandum of association, statutes, or rules of the institution (Tičar, Rakar, 2011). The council adopts the statutes, rules, or other general acts of the institution as well as programmes of the institution's work and development, monitors their implementation, defines a financial plan, adopts the annual financial statement of the institution, proposes any changes to the institution's activities or the broadening of the scope of its activities to the founder, and submits proposals and opinions about particular issues to the founder and the director of the institution. The management of a public institution is the director or other individual management body. The director is appointed and dismissed by the founder unless the law or the institution's memorandum of association stipulates that the council of the institution is competent to do so. Where the council of the institution is competent to appoint and dismiss the director of the public institution, the founder gives consent to the appointment and dismissal of the director, unless otherwise provided by law. Where the management of the institution and the management of the expert work of the institution are not separate, the director is appointed and dismissed by the council of the institution with the consent of the founder. The director of an institution with the right to operate publicly (i.e. an institution that is privately owned and has a state concession to carry out a public service) is appointed or dismissed with the consent of the competent national body or local community body, if so provided by law or an ordinance issued by the municipality (Tičar, Rakar, 2011). The director organises and manages the work and operations of the institution, represents the institution, acts on its behalf, and is responsible for the legality of its work. The director manages the work of the institution and is responsible for the professionalism of the institution's work unless the law or the institution's memorandum of association provides that, given the nature of the activity performed and the scope of management duties, the management of the institution and the management of the institution's expert work are separate (Tičar, Rakar, 2011). The expert work of the institution is managed by the head of the expert work of the institution (hereinafter: the expert head) if such is provided by law or the institution's memorandum of association.

The rights, duties, and responsibilities of the expert head are laid down in the statutes or rules of the institution in accordance with the law or the institution's memorandum of association. The expert head is appointed and dismissed by the council of the institution following the issuance of an opinion thereon by the council of experts, unless otherwise provided by law or the institution's memorandum of association. The provisions of the Institutes Act (1991) that apply to the appointment and dismissal of the director of the public institution apply, mutatis mutandis, to the appointment and dismissal of the expert head (Tičar, 2017). Institution shall have a council of experts or other collegiate expert body. The composition and manner of forming the council of experts and the tasks thereof are laid down in the statutes or rules of the institution in accordance with the law and the institution's memorandum of association. The council of experts deals with issues pertaining to the expert work of the institution, makes decisions with regard to expert issues within the limits of its competences laid down in the statutes or rules of the institution, determines the expert groundwork for the programmes of the institution's work and development, submits proposals and opinions to the council, the director, and the expert head with regard to the organisation of the institution's work and the conditions for the development of the institution's activities, and performs other tasks provided by law or the institution's memorandum of association, statutes, or rules. The institution has its own statutes or rules that regulate the institution's organisation, bodies, and the powers thereof, the manner of their deciding, and other issues relevant to the performance of the institution's activities and operation in accordance with the law and the institution's memorandum of association. The institution may also have other general acts that regulate issues relevant to the institution's work and operation in accordance with its statutes or rules. The statutes or rules of the institution are adopted by the council of the institution with the consent of the founder, whereas other general acts are adopted by the council of the institution, unless the statutes or rules of the institution provide that they are adopted by its director. The organisation of the institution is laid down in the statutes or rules of the institution. Organisational units may be formed within the institution to perform a particular activity or a part of an activity, or to perform an activity in a particular area. The statutes or rules of the institution may determine that particular organisational units are competent to enter into legal transactions and that they may exercise these powers on behalf of and for the account of the institution. The institution obtains funds for its work from the funds of the founder, with payment for the services it provides, the sale of goods and services on the market, and other sources in the manner and under the conditions provided by law or the institution's memorandum of association. The institution uses the surplus of revenue over expenditure solely for the purposes of carrying out and developing its activities unless otherwise provided by its memorandum of association. The institution is liable for its obligations with all its available assets, while the founder is liable for the institution's obligations, unless otherwise provided by law or the institution's memorandum of association.

4. DISCUSSION

The legal foundation of corporate governance is, as a rule, derived from majority ownership equity in the corporation. The hypothesis of this article was that public institutions are also corporations and that, in general, they do not have their own funds. Basis for the corporate governance of institutions will therefore be expanded to majority control of a corporation/institution that is legally ensured by the memorandum of association of the corporation/institution (e.g. by a decision or act establishing a public institution). The following comprise the broader tasks of the founders of public institutions (i.e. the state and municipalities) in Slovenia; these are authoritative and regulatory and exceed the scope of corporate governance, even though they significantly influence such (Kamnar, 1999):

a) The regulation of a non-commercial public service provided by an institution at the general and abstract levels. The founder determines in a general and abstract manner what the activity of the public institution shall be. Usually this is regulated by compulsory regulations, as a non-commercial public service is always carried out in the public interest.
b) Annual financing – by concluding annual contracts between the founder and the institution – for the institution to provide a specific public service in a certain geographical area and field of activity. Through such financing, each year the founder significantly influences the scope and quality of the provision of the public service that is the main activity of the public institution.
c) Making investments, as the assets that institutions manage are, as a general rule, legally owned by the founder. The only exception are public universities in the cases determined by the Act Amending the Higher Education Act, which is a lex specialis, where assets of the state are transferred to these institutions. However, also in the case of investments by universities, the state must provide the majority of the funds for investments (e.g. for new buildings, research equipment), as the public service cannot be ensured otherwise.
d) Exercising administrative supervision over public institutions regarding the provision of a public service. This refers to administrative inspection in the field of operation of the institution, supervision of the rational management of the funds of the institution by the Court of Audit of the Republic of Slovenia, and supervision of its financial operations by line ministries in cases in which an institution decides on public matters on the basis of having been granted appropriate public authority (according to the rules of general and/or special administrative procedures).

The above-mentioned tasks of the founders (i.e. the state and municipalities) of public institutions importantly influence corporate governance, however, they are not corporate governance itself. They represent a sui generis legal framework, which is characteristic only of public institutions. In a broader sense, these tasks are therefore also an instrument of governance by which the state and municipalities exert influence on the functioning of public institutions. In Slovenian public institutions a governance system is unique to the structure thereof has been developed, a structure composed of the management bodies of the institution, whereas the corporate rights of the founders are directed primarily at forming the institution's bodies, adopting fundamental strategic guidelines, and deciding on changes in the public institution in terms of its organisational form (Trpin, 2009). A corporate legal relationship within a public institution between the state or a municipality and the public institution itself is implemented within the scope of the right of the public founder of the public institution (i.e. the state or a municipality), in general, to directly appoint the majority of the members of the council of the institution. Due to their inability to manage the institution, the state or municipality transfers the authority to manage such to its members in the council of the institution, who exercise this power on their behalf. In doing so, the members of the council of the institution must act in accordance with the guidelines and instructions of the founder; however, they do not have an imperative mandate. This applies to both state-founded and municipality-founded public institutions. Furthermore, this entails that the members of the council of the institution who were appointed by the founder participate in adopting the collective decisions of the council with legally binding effect even if their decision is contrary to the directions and instructions of the founder. At first sight, such regulation might seem unusual, but it is entirely logical, as otherwise it would be impossible to know when a decision of the body is legally binding and when it is not. Founders could namely challenge the decisions of the council any time, stating that an individual member of the council did not vote in accordance with their guidelines and instructions. This would result in complete confusion within the legal order and significantly diminish general legal certainty.

Finally, the founder's rights are also reflected in the fundamental documents and acts of a public institution that provides a non-commercial public service, which are adopted directly by the founder. As a general rule, these include the programmes of the institution's work, financial plans, and annual financial statements. Similarly as with the appointment and dismissal of the management body, also these tasks can be entrusted to the council of the institution. In addition, the founder also decides on changes to the public institution in terms of its organisational form; as a rule, it reserves this right for itself and does not transfer it to the council.

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THE RESEARCH AND INNOVATION OF SMART SPECIALISATION STRATEGIES: THE TRANSITION FROM THE TRIPLE TO QUADRUPLE HELIX

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ABSTRACT
This article suggests the Entrepreneurial Discovery Process (EPD) that underlies Research and Innovation Strategies for Smart Specialisation (RIS3) is not so much caught in the transition from the Triple to the Quadruple Helix, as rooted in a division within civil society. In particular, rooted in a division within civil society, over public trust in the EDP and around the democratic deficit of RIS3. Over public trust in the EDP and around the democratic deficit of RIS3 as a transgression, which centers attention on the participatory governance of science and technology, which is regressive in nature and whose knowledge economy seeks to overcome such limitations as part of the search for sustainable regional growth that serves civil society.
Keywords: *Regional Innovation, Smart Specialisation, RIS3, Entrepreneurial Discovery Process, Knowledge Economy, Democracy, Participatory Governance, Sustainable Regional Growth*

1. INTRODUCTION

After a brief review of the literature, this paper investigates the post-linear era of knowledge production by focusing attention on the EPD of Smart Specialisation Strategies (S3), in which the deployment of both the triple and quadruple-helix models offer guidance on the participatory governance of science and technology. The paper uncovers the social division within the deployment of this guidance by: (1) revealing the transgression of public trust by the triple-helix model; and (2) capturing the critical insights this regression offers into the democratic deficit that surrounds the governance of science and technology of the Quadruple Helix and which the EPD of RIS3 is unable to overcome. The paper then takes the opportunity to reflect on the prospect these emergent research and innovation strategies offer in terms of being more progressive. In particular, to be progressive in resolving this deep-rooted division in civil society, by way of a democratic restoration of public trust and through a participatory governance of science and technology.

2. OVERVIEW OF LITERATURE ON THE EPD OF RIS3

By 2010, the European Council aimed to make Europe "the most dynamic and competitive knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment" (Rodriguez et al.

2010: 11). To accelerate this transition, in 2005, the European Commission (EC) set up the Knowledge for Growth (K4G) Expert Group. This group of European economists operated as an independent advisory body and provided policy recommendations on how to develop research and innovation strategies able to move Europe towards a competitive knowledge-based economy (European Commission - Directorate-General for Research 2008; Knowledge for Growth Expert Group 2009). These recommendations were published between 2005 and 2009 as a series of policy briefs and reports[1]. These publications offer policy advice on those issues that the EC need to address in order to pave the way for a competitive knowledge economy and introduce the concept of Research and Innovation Strategies for Smart Specialisation (RIS3). This emerges as a leading idea of the K4G Expert Group and is explained in detail in the policy briefs from Foray and Van Ark (2007) and Foray et al. (2009). As McCann and Ortega-Argiles (2015), Capello (2014) and Kroll (2015) all highlight, Smart Specialisation requires countries and regions across Europe to engage in an Entrepreneurial Discovery Process (EDP), which underlies the design of Smart Specialisation Strategies and that supports the implementation of research and innovation. Within this process of entrepreneurial discovery, the design and implementation strategies are perceived to emerge from a bottom-up collaborative learning process that is instrumental in pooling the place-based knowledge of local entrepreneurs engaged in research and innovation and identifying the "areas of specialisation" which are smart in sustaining the economic growth of regions (Foray et al. 2009; OECD 2013; Piatkowski 2015).

3. DEPLOYMENT OF BOTH THE TRIPLE AND QUADRUPLE-HELIX MODELS

The triple and quadruple-helix models both take a central stage in the EPD of RIS3. While the Triple Helix appears to be the model of choice for Joanneum Research and Austrian Federal Ministry of Science, Research and Economy (2012), recent statements by the EC's Joint Research Centre (JRC) clearly recognizes the EPD needs a platform of stakeholders broader than university, industry, and government for RIS3 to be democratic in governing the science and technology that underpins such prioritizations as those which support regional economic growth (Foray et al. 2015). Bearing in mind the significance of this statement from the JRC, the following shall provide a synopsis of the Triple and Quadruple-Helix models of research and innovation strategies in the EPD and the initial insights this offers into RIS3.

3.1. The Triple-Helix model

Exponents of the Triple Helix (Etzkowitz and Leydesdorff 1997; Etzkowitz and Leydesdorff 2000; Leydesdorff 2005; Leydesdorff and Meyer 2006) find Mode 2 accounts of social change, cultural development and economic growth wanting and explain the differences between innovation systems (national and regional) in terms of possible arrangements. Under this knowledge-based regime, each system remains in endless transition. This does not mean anything goes, but that emerging systems should not be considered as yet another variation on the theme, i.e. as the EDP of either national or regional research and innovation strategies, because the interacting uncertainties which the reflexive instability any such Specialisation Strategy generates itself, does much to determine the prioritization of science and technology they reflect. As a result, the Triple Helix studies university-industry-government relations and offers a neo-evolutionary model of research and innovation (Leydesdorff and Deakin 2011). It also suggests there are three evolutionary functions cultivating the selection environments of both national and regional research and innovation: (1) intellectual capital of organized knowledge production; (2) wealth creation; and (3) reflexive control (Leydesdorff and Deakin 2011; Deakin and Leydesdorff 2014).

[1] See for example: Foray (2006); David and Metcalfe (2007); O'Sullivan (2007); and Marimon and Carvalho (2008).

Within the Triple Helix of this reflexive control, wealth creation and organized knowledge production, the EDP constitutes a broader platform of stakeholders from universities, industry and government that is not biologically inherited from an ecosystem, but which is socially constructed. Not inherited from an eco-system, but socially-constructed as the entrepreneurial discovery of a research and innovation strategy that is smart in the prioritization of a specialisation whose participatory governance of science and technology is able to sustain the economic growth of regions. This is the hallmark of organized knowledge production, which the Triple Helix model champions (Deakin 2014; 2015). In particular, the organized knowledge production, which the Triple Helix model champions as the research and innovation of Smart Specialisation Strategies and whose participatory governance of science and technology is able to sustain regional economic growth (Deakin and Reid 2016; Deakin et al. 2017).

3.2. The Quadruple-Helix model

The EC's Guidance Notes for RIS3 recognizes the need for a participatory governance of science and technology and champions the virtues of the Quadruple-Helix (Foray et al. 2012). The Quadruple Helix constructs what this model refers to as the social ecology of an EPD and the RIS3 of knowledge production (Carayannis and Campbell 2012). This model switches attention away from the universities, industry and government, that underpin the intellectual capital of organized knowledge production, and focuses instead on an EDP of a wealth creation which is able to support the reflexive control of RIS3. Which is to say, focuses instead on the EPD of wealth creation, which is able to secure the reflexive control of RIS3 as the user-centric communities of a democracy, whose participatory governance of civil society constructs an eco-system that is able to sustain the economic growth of regions (Carayannis and Rakhmatullin 2014). For the Quadruple Helix, the communities of users exhort reflexive control over the science and technology they produce knowledge of. In this model, user-communities are not only understood to be involved in the process of entrepreneurial discovery, but also able to shape new types of research and innovation strategies, which connect users with other stakeholders whose exchange of knowledge is distributed across universities, industry and government (Carayannis and Campbell 2010; 2012; 2014; Carayannis and Rakhmatullin 2014). This means the Quadruple Helix sees the role of these institutions not as the agents of any intellectual capital, or organized knowledge production, but instead as the media of a creative sector whose democratization of wealth creation allows the public to participate in the governance of science and technology as members of civil society.

3.3. Initial insights into the models

This synopsis offers some initial insights into the limitations of the Triple Helix and failure of this model to account for the democracy of any participatory governance within civil society (Deakin 2014; 2015; Deakin et al. 2017). In addition, it also serves to highlight the relationship between civil society, science and technology as a matter of particular concern. This concern occurs because unlike the Triple, the Quadruple-Helix model does not see any reference to the entrepreneurial discovery of a research and innovation strategy as particularly useful and as a result, tends instead to present the Triple Helix as an EPD dominated by the proprietary system of an elite university-industry axis (Carayannis and Campbell 2012; 2014). In that sense, a proprietary system of knowledge exchange, which is based on an elite university-industry axis that offers a corporate RIS3, assembled as the prioritizations of a Smart Specialisation whose reflexive control of democracy is based on anything but a participatory governance of science and technology. This goes someway to capture what distinguishes these two models of knowledge production. In particular, the fact they are not only models of entrepreneurial discovery, or research and innovation strategies, but the source of bottom-up and place-based regional and national policies which are constructed as the EDP of a RIS3 that is democratic.

The distinction between them, lying in the distance separating each of the respective model's interpretation of what is democratic from the other. In that sense, on the respective interpretation of whether-or-not this can rest on a proprietary system of research and innovation in a university-industry axis, whose strategy for Smart Specialisation is founded on pre-dominantly corporate priorities, or instead upon one which is civic in the sense that it allows user-communities to participate in the governance of science and technology as members of society which also exerts some measure of reflexive control over it. Given the social significance of the models and particular weight they each put on the democracy of this participatory governance, not to mention the virtues they both propose to engender in both scientific and technological terms, to merely caricature the division between the Triple and Quadruple Helix model's as the difference between say, the proprietary systems of knowledge economy and participatory governance of civil society, would do them an injustice. As too would any suggestion either one of them is sufficiently powerful to bridge such a deeply-rooted division by themselves. For any such claim would merely serve to exemplify how the ambiguities currently surrounding the entrepreneurial discovery of research and innovation strategies, not only run the risk of misrepresenting what Smart Specialisation stands for, but also ignoring the real consequences of the prioritizations selected to serve a knowledge economy whose deeply rooted social divisions bring any notion of reflexive control, democracy and user-communities in the participatory governance of science and technology into question.

4. UNCOVERING THE DEEP-ROOTED DIVISION

The reason for uncovering the division in the Triple and Quadruple-Helix models, is not to capture any errors in the conceptual schemas either one of them advances in relation to the EDP, or how these effect RIS3. It is instead done to reveal the deeply-rooted social division that underlies all of this and which surfaces as a lack of public trust in the participatory governance of science and technology and attempts made to meet the democratic deficit associated with the reflexive control of wealth created from that organized knowledge production which is of particular concern to both of them. In that sense, the lack of public trust in the EPD and democratic deficit in RIS3 associated with claims made about the virtuous nature of any participatory governance of science and technology. Moreover, and in spite of, what the Triple and Quadruple-Helix models each claim, that transgression of public trust and deficit in democracy, which user-communities perceive as being regressive in terms of that degree of reflexive control which the EPD exhorts over wealth creation and RIS3 prioritizes as the research and innovation of entrepreneurial discoveries related to an organization of knowledge production whose economy is only able to sustain regional growth at the expense of civil society. Given the weight that the statement "at the expense of civil society" takes as a reflexive control that transgresses public trust and which is regressive in terms of the democratic deficit this signifies, it is a matter that not only warrants further examination, but one which also calls for additional consideration as the basis of any bottom-up and place-based regional and national policies towards the EDP of a RIS3. Not only because at first sight this lack of public trust and democratic deficit is exactly what the Quadruple Helix is understood to offer as that knowledge economy which meets the governance challenge the Triple Helix leaves unresolved, but for the reason a closer examination of this model does also tend to bring this public trust and democratic deficit reading of the transition from the Triple to Quadruple Helix into question. For what such a "trust-deficit" reading of the transition tends to ignore is the fact those championing the Triple-Helix model do meet the governance challenge without putting so much critical distance between the intellectual capital of an organized knowledge production (Lombardi et al. 2012a; 2012b; Kourtit et al. 2014; Deakin and Leydesdorff 2014; Deakin 2014; 2015; Deakin and Reid 2016; Mora and Bolici 2016; 2017; Mora et al. 2017) and that democratization of the public which the Quadruple Helix calls for as a basis for user-

communities (Carayannis and Campbell 2012; 2014) to participate in the governance of science and technology as members of civil society. For what those championing this "Advanced Triple-Helix" model are all too aware of is that neither any democratization of the public, nor those user-communities which participate in the governance of science and technology is the exclusive property of any "ecology social media cultivates" to fill the trust-deficit, but instead attributes of that intellectual capital which underlies the organization of knowledge production surfacing in civil society. That intellectual capital which underlies the organization of knowledge production in civil society and surfaces in the economics of that wealth creation which any democratization of the public as user-communities exerts reflexive control over as a participatory governance system (Lombardi et al. 2012a; 2012b; Kourtit et a. 2014; Deakin and Leydesdorff 2014; Deakin 2014). The awareness of the link these attributes of knowledge production (democratization of the public as user-communities) have to civil society, science and technology and connection this in turn has to participatory governance, leads advocates of this Triple Helix-plus model to call not so much for the addition of another helix that is dedicated to the democratization of the public as user-communities which participate in the governance of science and technology, but instead an extension of the Triple Helix's reach from the intellectual capital of organized knowledge production to the economics of wealth creation. Not just in terms of that process of entrepreneurial discovery which underpins the research and innovation of any emergent "knowledge economy", but in a manner that also supports the priorities of RIS3 as a set of place-based, bottom-up regional and national policies for the reflexive control of democracy by a public whose status as user-communities means they do participate in the governance of science and technology (Deakin 2015; Deakin and Reid 2016). This way, vis-à-vis by way of the emergent properties of an entrepreneurial discovery process underpinning research and innovation and through the organization of knowledge production into an economy this supports as a process of wealth creation, it does become possible for the priorities such a Smart Specialisation lays down, to act as a set of bottom-up, place-based polices. Bottom-up, place-based policies that are not only able to underpin the reflexivity of a democracy now under the control of that public which would not otherwise exist as user-communities able to support any participatory governance of science and technology due to the status of them as members of civil society. This, the authors suggest, is the only way it becomes possible to get any equivalence between the entrepreneurial discovery process of the research and innovation strategies championed by the Triple and Quadruple Helix models of Smart Specialisaton, not as any transgression of public trust, or democratic deficit that is regressive, but as the bottom-up, place-based regional and national policies of a public whose user-communities participate in the governance of science and technology which is progressive. Which is instead progressive by virtue of the fact RIS3 does not turn on a strategy able to merely inflect some semblance of control over a knowledge economy, but reflexive control of that democratization which the public is subject to and can participate in the governance of as the science and technology of a sustainable regional growth of nations.

5. REVEALING THE TRANSGRESSION

This transgression of public trust and regression into a democratic deficit is what manifests itself in the drive both the Triple and Quadruple Helix models exhibit towards some kind of reflexive control over the participatory governance of science and technology. As the discussions in the previous section serve to indicate, the public trust gap that has opened up as a democratic deficit, has significant implications for the Triple-Helix and Quadruple-Helix models in the sense which they serve to offer some insights into the nature of this shortfall. In that sense serve to offer some insights into the nature of this shortfall and which is not only seen as a transgression of them, but deficit of trust also regressive for society. Here, they are summarized in the interests of reaching beyond any formal critique of the models and towards

what might be best referred to as the dis-content with the transgression of public trust by the Triple Helix and regression of this into the democratic deficit of the Quadruple Helix. In this way, the dis-content, which circulates around this transgression can be revealed as a regression that relates to:

- a lack of trust from the public in the EDP that underlies research and innovation within university and industry and which surfaces as a gap between the knowledge economy this wealth creates and priorities such a Smart Specialisation sets for a reflexive control of democracy by that public which are left dis-empowered from any participation in the governance of science and technology as members of civil society seeking to sustain regional economic growth. The reason the public give for this democratic deficit being the participatory governance of science and technology does not tackle the major challenges which civil society confronts. In that sense does not tackle poverty, or combat depravation and because of this, is either unethical or ecologically destructive. This also suggests the ethics of poverty, depravation and ecological destruction, are ignored, because research and innovation is increasingly developed by trans-national corporations, whose intellectual property rights organize knowledge production in such a way the wealth created offers little opportunity for either the nation-state, or region to exhort any reflexive control over this economy by the public as part of a democracy whose participatory governance sets the agendas for science and technology (the Triple Helix model);
- the democratic deficit within civil society which proposes it is the lack of opportunity which the public have to participate in the governance of science and technology as user-communities that is significant. Because it results in that public which constitute civil society being excluded access to: 1) consultations on how to tackle poverty, combat deprivation and overcome environmental destruction; 2) deliberations over the way wealth, prosperity and ecological reconstruction of the knowledge economy, can meet these challenges by way of the reflexive control it exhorts over such a democratization and through the participation of user-communities in the governance of science and technology able to sustain economic growth (Quadruple Helix model).

This transgression results because that trust which those seeking to meet the governance challenge by way of a democratization of the public and through user-communities that participle in a governance which civil society assume to be an abundant property of, is the very thing it lacks and falls short of. Which in that sense, civil society is assumed to be an abundant property and readily available, vis-à-vis something that can be openly sourced, but which in reality turns out to be that very thing organized knowledge production lacks. Which organized knowledge production lacks and falls short of, because the intellectual capital of wealth creation that it appropriates works to deny the public universal access to an entrepreneurial discovery process whose research and innovation is able to prioritize Smart Specialisation as the reflexive control of a democracy whose bottom-up, place-based regional and national policies are credible enough to close the trust-deficit and demonstrate this by including those who are otherwise left dis-empowered as user-communities. In that sense, credible enough for organized knowledge production close this trust-deficit by including those who are otherwise left dis-empowered as user-communities. Who are otherwise left dis-empowered as user-communities and excluded from that science and technology which the knowledge economy would mobilize to confront the major challenges the public face in tackling poverty, combatting depravation and promoting an ecological reconstruction. Which the knowledge economy would otherwise mobilize to confront the major challenges the public face in tackling poverty, combatting depravation and promoting an ecological reconstruction as part of a research and innovation strategy whose knowledge economy is able to re-prioritize Smart Specialisation by virtue of the user-communities this empowers to participate in the governance of science and technology.

By virtue of the user-communities that any such "re-prioritization of Smart Specialisation" empowers to participate in the governance of a science and technology whose organization of knowledge production does possess a sufficient degree of reflexive control for the abundance of intellectual capital which this process of entrepreneurial discovery creates, to clear any deficit and for this appropriation of wealth to sustain the regional growth of that democratization which the trust of the public either stands or falls (European Commission 2010; European Commission 2016; United Nations 2017).

6. CONCLUSIONS

This paper examines the EDP of RIS3 in organized knowledge production and suggests what this wealth creation represents as a process of reflexive control, is not so much caught in the transition from the Triple to the Quadruple Helix, as rooted in a division within civil society. With the European Commission's Joint Research Centre no longer championing the research and innovation strategies of the Triple Helix as the model of choice and instead choosing to endorse the Quadruple Helix, the paper suggests there is a pressing need to understand this transition as the symptom of a deeply rooted social division. As the symptom of a deeply rooted division in civil society whose root cause lies in that lack of public trust, which is assumed to be an abundant property, but that on reflection is found to be the very thing in the process of democratization which there is a deficit of and the public lacks the power to change, even thought public trust is fundamental in any attempt made to clear this democratic deficit, either by way of that participatory governance, which each of the models draw particular attention to, or the science and technology they both in turn highlight the significance of. While the literature on the EDP of RIS3 is silent on this matter, the paper suggests this trust-deficit results because simply calling for broader participation, as a way to meet any governance challenge fails to take account of the organized knowledge production that underlies the process of wealth creation and which surfaces as the reflexive control of a knowledge economy whose trust-deficit otherwise renders any bottom-up, place-based regional and national policies almost powerless to do anything about. We suggest that calling for broader participation is tantamount to asking someone else out with the normal sphere of influence, to fill the void in what is known about the bottom-up, place-based polices of an EDP able to set the priorities of Smart Specialisation. In this instance, that "someone else" being code for those who advocate a transition from the Triple to the Quadruple Helix. In particular, to a Quadruple Helix whose advocates in fact argue in favor of an EPD whose "collective learning" is partial, drawn form a narrow, not broad "pool of knowledge" and intellectual capital that is instead restricted, to the social media of the cultural sector, which rather than an extension of that university-industry axis which is understood to be needed for any reflexive control of the wealth this knowledge economy creates to be universal in granting the public access to such a democratization of RIS3. More specifically, to a knowledge economy that is universal in granting the public access to a democratization of RIS3, whose participation in the governance of those consultations over the inequalities of poverty, deprivation and environmental degradation and deliberations around wealth, prosperity and ecological reconstruction, is the very thing which hold out the prospect of this participatory governance being successful in closing that trust-deficit, which would otherwise persist. To be exact, closing the trust-deficit which would otherwise persist, by allowing user-communities to source crowds whose reflexive control of the knowledge economy is sufficiently universal for the university-Industry axis to restore trust and clear the democratic deficit, both by way of that participatory governance which this institutes and through that science and technology which communities use to sustain regional growth on behalf of civil society.

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DIGITAL TRANSFORMATION AND E-BUSINESS IN CROATIAN COMPANIES

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ABSTRACT

This paper combine digital transformation and e-business as two connected concepts in which e-business is prerequisite for digital transformation. Both concepts, are described, trends in there development and implementation are presented in literature review and perception of benefits; usage and the cause of pure application were investigated. Research was conducted on sample of 436 Croatian companies. Results indicate that perception about e-business benefits are generally positive, but usage does not show the same trend, while causes of poor application which has been tested does not show significant as perceived. Finally, according to the results, the same problems, like in e-business implementation, could be expected in digital transformation in Croatia as well as in other countries of EU.

Keywords: *Croatia; digital transformation, e-business, perception, use of e-services*

1. INTRODUCTION

Digital transformation and e-business are two complex concepts focusing on changing the way businesses operate in the last 20 years. E-business as a special relationship between business participants, enables crossconecting business processes off seller and buyer by modern Information and Communication Technology (ICT) and integrating processes off business partners in supply chain. Since, the beginnings of e-commerce and further larger concept e-business, in large companies and IT systems of the eighties and nineties with EDI lots of things and mainly the setting has changed. From the first use of word e-business in 1997 by IBM (Papazoglou and Ribbers, 2014) and from year 2000 almost all governments in the world begin to explore and start implementing some form of e-business / e-government services for citizens and enterprises. In last couple of years almost all major countries of the world have been introducing mandatory use of e-business (from 2016 till the 2018 or furthermore) with the obligation to use e-invoices and e-business between companies and government and in that manner encourage stronger application of this new way of doing business in future (Koch, 2017). With the development of e-business and its massive application, technology development and massive use of smart phones, the availability of high-speed Internet, cloud computing, using embedded devices in a growing number of devices of all kinds, a large part of business can take place independently of standard information systems and companies own infrastructure. New products and business model based on data generated in all these systems and devices that are used daily, and are called "smart" devices leads to digital business transformation.

On the brink of such a modern society or "Information Society" as the European Commission calls it in its strategic guidelines - Europe 2020 (European Commission, 2010) the way that the modern business is working is on turning point in new direction or digital transformation. According to McKinsey Quarterly (Bughin, LaBerge and Mellbye, 2017) "Digital technology, despite its seeming ubiquity, has only begun to penetrate industries. As it continues its advance, the implications for revenue, profits, and opportunities will be dramatic". The term Digital Transformation means some kind or combined use of: automated business processes, digital supply chains, smart embedded devices, mobile phones, cloud systems and data analytics based on data from all of these devices through the Big Data concepts with the ability to utilize a large amount of data collected through these systems and gain a new benefit. Imran, Gregor and Turner (2016) depicted that "ICT is now a source of value for many organizations, both public and private… A gain in productivity across the whole economy that benefits all citizens can be shown to flow from effective use of ICT". In the light of these considerations, a survey of e-business applications was conducted in Croatian companies with the aim of identifying opportunities or e-business conditions as a prerequisite for the digital transformation of the supply chain that we are striving for, in the future. In this paper, main task of this research among Croatian companies of all sizes is to identify:

a) Current state of digital transformation in the way of using e-business as prerequisite for digital transformation.
b) Barriers or drawbacks that influence digital transformation introduction.
c) Perception of the effects of digital transformation introduction in everyday business.

By means of e-business and digital transformation are considered: usage of government e-services, digital supply chains indicators such as e-invoices, e-order, e-delivery usage, internet banking … etc. in regular business processes.

2. DIGITAL TRANSFORMATION AND E-BUSINESS

Digital transformation and e-business are connected terms firstly because digital transformation of business imply transformation of customer experience, operational processes and business model in which companies' cooperation among each other which means in direct way the e-business. In this article, research was focused on digital supply chain processes and use of structured electronic or digital documents, use of government e-services, and Internet banking that allows business to gain speed and automate mutual communication. According to data flows, generated in information systems, among other things generated by e-business, a new value for digital transformation could be utilized. Special issue of MIS Quarterly by Majchrzak, Markus and Wareham (2016) made a review of lessons for Information Systems Research from the Study of ICT and Societal Challenges that analysed 14 articles in digital transformation gaining overall image of digital transformation in research and practice so that examples from this wide area of application are presented in one place. Schweer and Sahl (2016) comment that mobile Internet, social media and digital services are becoming normal part of our lives and that in study from Roland Berger Strategy Consultants in Europe could gain 1.25 trillion of euros of benefit by digital transformation until year 2025. Digital transformation would also be effecting human resources, which in way of guide to digital transformation HRM was presented by Amladi (2017) and emphasize that future and current employees needs to be educated and flexible for jobs of the future with focus on manufacturing. In means of e-business several studies in last 10 years were made that emphasize the future benefits of e-business and structured e-documents that significantly transforms operational business process and make collaboration between business partners (B2B) more effective and helps business to transform their overall business model.

From year 2000 and Gulati and Garino (2000) article in Harvard Business Review, that explored the right amount of electronic / digital in common company of that time and beginning of e-commerce on the Internet, till today's world with full online working companies, banks and service oriented companies that would not exist without smart-phones or fast Internet access, many things has changed. McKay, Marshall and Prananto (2000), made the Maturity model for e-business, which now needs update since the new companies exist only online, and would not exist without of new technology futures like smart phones that were in beginnings in year 2000. In year that fallows till 2017 many authors try to measure the value of ICT. In electronic order-to-payment cycle research was made by Lempinen and Penttinen (2009). Zheng et al (2004) and Chan et al (2012) have investigated factors affecting larger adoption of e-business, especially in SMEs, but many things are still unclear and adoption of new technology is rapidly growing but still not on level of common use in year 2017 like stated Koch (2017) or like confirmed Bughin, LaBerge & Mellbye (2017) that digital transformation is at the beginning. In that light research among companies in Croatia, last new member state of EU (from year 2013) with intention to see the state of digital transformation of supply chain processes and use of e-business is justified.

3. RESEARCH DESIGN AND DATA

Research on the application of e-business or the state of digital transformation in the Republic of Croatia was conducted in the period September - December 2015. Data were collected through online questionnaire composed of 35 questions, with 4 questions related to company general information and 15 questions related to the application of e-business and digital transformation. The questionnaire was sent to the 23,805 e-mail addresses of SMEs and large companies, whereby 436 properly completed surveys were collected.During the survey, company contacts in the Republic of Croatia were collected through the database of Croatian Chamber of Economy so called BIZNET (2017) according to the county centres including the city of Zagreb in December 2015. In total, there were 151,445 companies active in the Republic of Croatia in all forms of registration including other legal entities and the sample was clustered by two criteria:

a) size of the company,
b) availability of the contact or e-mail address.

Totally there was recognized: 501 active large companies, in the sample came 495 companies (98.8% of all large companies); medium enterprises total of 1280 enterprises, in the sample entered 1263 enterprises (98.8% of all medium enterprises); small businesses in three categories: from 2-9 employees, 10-50 employees and 51+ employees all together 43,098 enterprises, in the sample came in 22,047 small businesses (51,6% of all small enterprises). Companies with fewer than 2 employees (ie one or no employees) were excluded from the survey (22,241 with one employee and 32,409 companies with no emloyees were not taken into account). In total there was 51,916 other legal entities that were not included (eg. public institutions, other legal forms of companies such as all types of associations and uncategorised subjects). Total of the active companies in 12/2015 was 151.445 companies, from which, by size and availability of mail contact, in the sample was taken total of 23,805 enterprises i.e. the sample makes 15.71% of the population. In this sample, the return of properly completed surveys was 436 i.e. 1.83% of the sample. All companies in the category of large and medium-sized enterprises in all counties in the Republic of Croatia were represented in the sample, while small enterprises were collected clustered by counties, with the availability of contacts separated by those companies that have e-mail contact.

4. RESEARCH RESULTS

Considering that the aim of the research in this paper was examine usage and perception of e-business and use of e-services as prerequisit for digital transformation in Croatian companies, in this chapter we present a detailed overview of research results. In the survey participated and completely and correctly filled out the questionnaire a total of 436 Croatian companies, of which 406 small, 25 medium and 5 large companies (cca 1-2% of addressed sample population in each category). As can be observed from the data presented in Figure 1 (on next page), the responses to questionnaire items which are related to perception of Croatian companies about e-business and in particular perception that e-business enables: the cost reduction of human labor and increase the efficiency of business processes shows that on average 75% of companies agree or strongly agree with this conclusion. Also, as related to reduction of consumption of materials and other non-human labor costs companies agree or strongly agree that e-business allows its reduction in on average 81% of respondents. With regard to both of the two observed components in Figure 1 (cost of human labour and consumption of materials), the most positive attitude can be noticed in medium-sized companies 88%. From presented results, it can be concluded that companies regardless of the size are motivated to use e-business services because they recognized the positive sides of the usage.

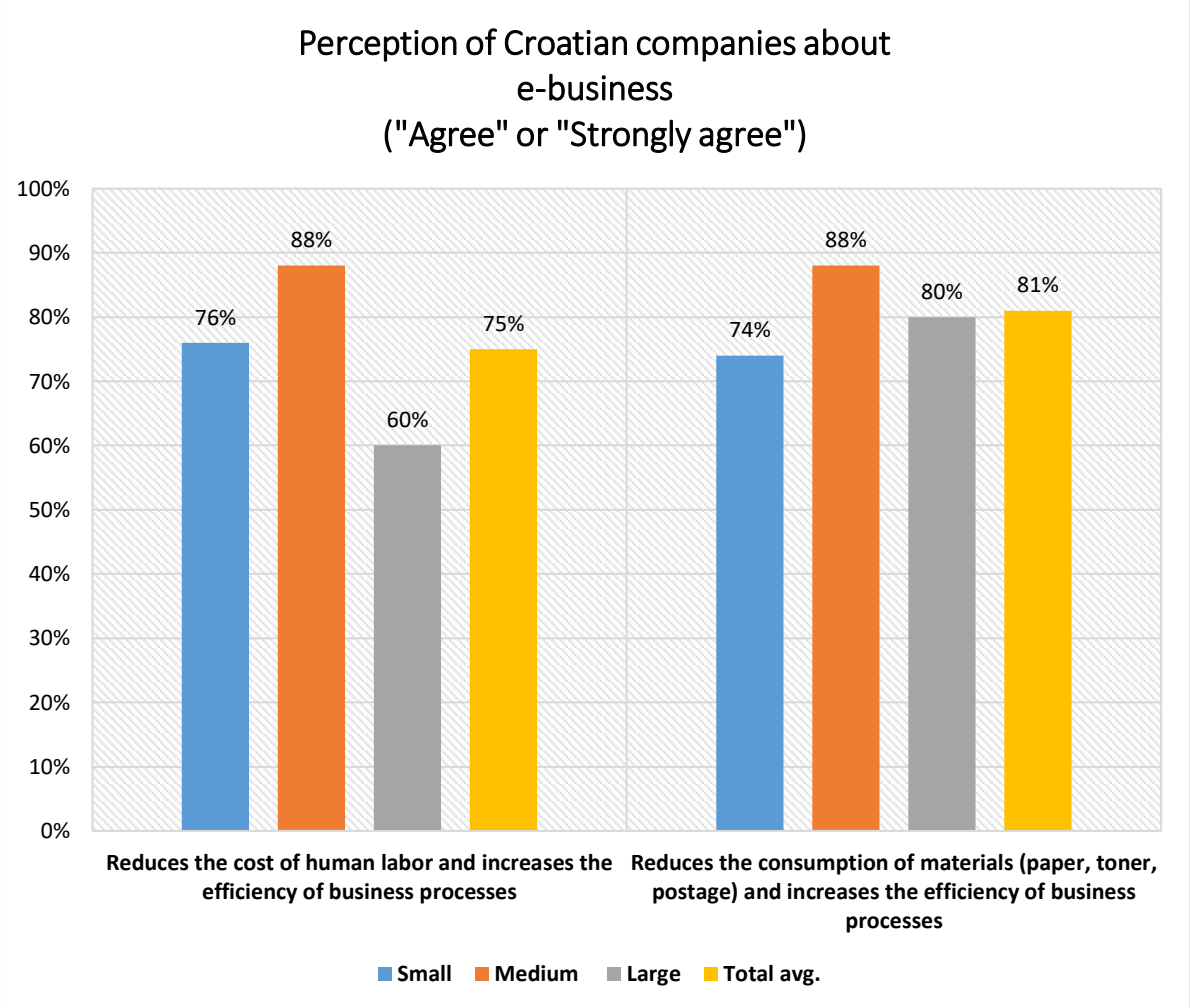

Figure 1: Perception of Croatian companies about e-business

Despite a considerably positive attitude regarding the e-business services (Figure 1), the data in Figure 2 reveal that not all types e-services related to e-business are used to the same extent in Croatian companies.

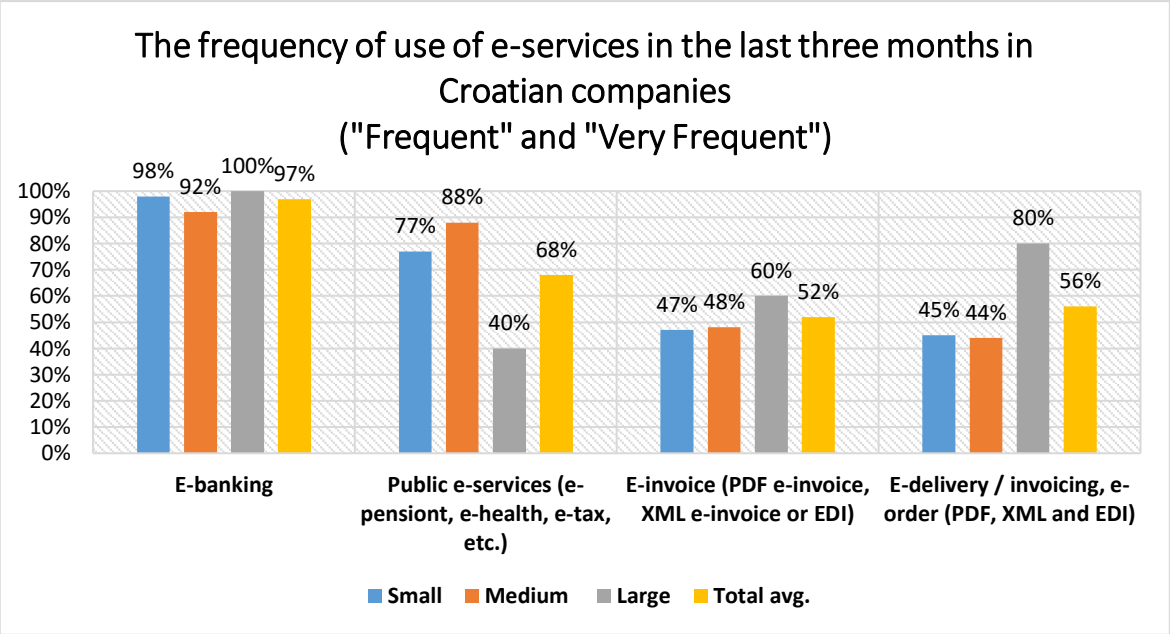

Figure 2. The frequency of use of e-services in the last three months in Croatian companies

According to the data presented in Figure 2, the most commonly used e-service is e-banking which is used in more than 90% of the surveyed companies. Here we particularly single out large companies which are all confirm that they use e-banking.

Unlike e-banking, public services such as e pension, e health, e-tax, etc., are more used in medium (88%) and small companies (77%), while less than 50% in large companies. The reverse situation is in the use of e-services such as e-invoice and e-delivery / invoicing, e-order, which are largely used in large companies, while in small and medium companies' usage, is less than 50%.

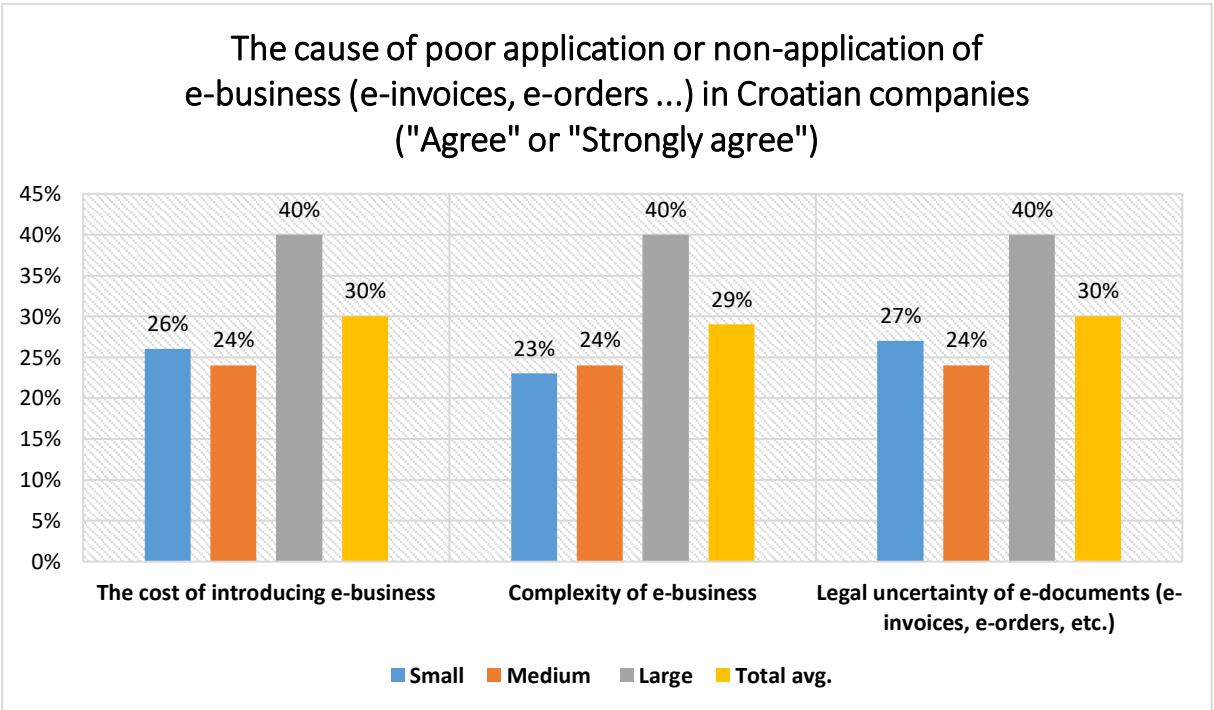

Figure 3. The cause of poor application or non-application of e-business in Croatian companies

Related to the causes of poor application of e-business due to cost of introducing e-business, complexity of e-business and legal uncertainty of e-documents (Figure 3) the results are the same for small and medium companies and indicate that these are not the real causes of not using such services, because less than 30% of respondents "Agree" or "Strongly agree" that these are the main causes of poor utilization. Unlike small and medium enterprises, a slightly higher percentage of respondents in large companies (40%) has the opinion that these are the causes of poor application. These results are an indicator to the authors of the paper that in further research should examine some other causes of poor application.

5. CONSLUSION

Based on the above-mentioned, digital transformation or introduction of e-business is inevitable. While the perception of Croatian companies on introduction is mostly positive, however figures show that the introduction of some forms of e-business still has potential for improvement. Factors that are tested, that are cause of poor application or non-application of e-business, show that they do not significantly affect the introduction and that open the question to continue research and identify and investigate other factors that could affect poor implementation, where this is an important factor of "large numbers" or the problem of "snowball principle". For introduction of e-business, it is necessary for others to implement it, and because of that in Croatia, implementation does not progress as in the countries that made e-business mandatory in communication of companies with the government what makes the great influence on mass addoption. According to the results presented in this paper, it can be concluded that the digital transformation of the company will have the same problem as the introduction of e-business as it has only recently acquired the conditions to be implemented. The expected effects for Croatia should be similarly affected as well as in developed countries because the development of infrastructure and prerequisites for digital transformation exists.

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SETTING THE COUNTERCYCLICAL CAPITAL BUFFER THROUGHOUT THE FINANCIAL CYCLE

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ABSTRACT

Basel III regulatory framework an important macroprudential instrument: a countercyclical capital buffer. This instrument is designed to reduce the consequences of worsened access of firms and households to banking credit in bad times. This paper proposes the approach to the countercyclical capital buffer using the experience of the Czech National Bank. It describes its decision-making process from assessing the position of the economy in the financial cycle through to setting the buffer rate. The approach that can be labelled discretion guided by multiple-factor analysis builds upon the signals from both individual and composite indicators of financial cycle and systemic risk. The paper then describes the factors that the macroprudential authority takes into account when setting the specific countercyclical capital buffer rate.

Keywords: *countercyclical capital buffer, credit-to-GDP gap, credit losses, financial cycle*

1. INTRODUCTION

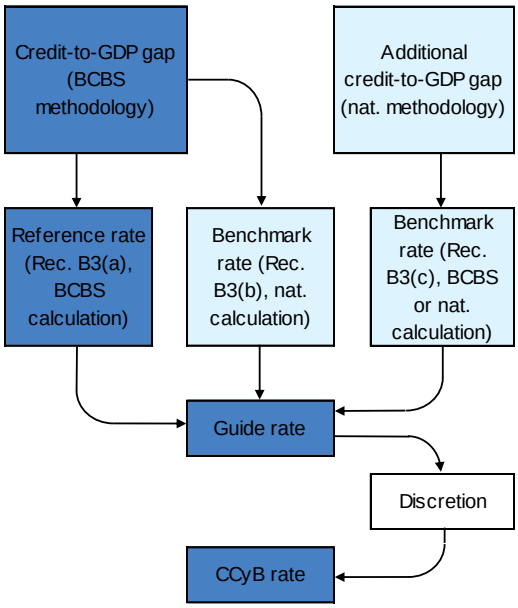
The countercyclical capital buffer (CCyB) is a pure macroprudential policy tool. It is designed to protect the banking sector against risks arising from its behaviour through the financial cycle, and in particular from excessive credit growth, which generates systemic risks and increases the potential for sharp swings in economic activity. A macroprudential policy authority should ensure that banks create a capital buffer during the financial expansion to enable them to absorb losses in the event of an adverse shock accompanied by elevated financial stress and growth in loan defaults. Use of the buffer at such a time should prevent a fall in the supply of credit to the sound part of the economy and stop the shock spreading from the financial sector to the real economy and causing the banking sector further losses. At first glance, the CCyB is a very simple tool. In reality, though, setting the CCyB rate is a complex task in terms of both decision-making and communication. It can be particularly difficult to justify the specific level at which it is set. This paper aims to present key aspects of the CNB's approach to setting the CCyB rate, contribute to better formation of expectations about the future path of the rate and thereby facilitate capital planning for credit institutions. The paper is structured as follows. Section 2 summarises the essence and purpose of the CCyB, describes the BCBS/ESRB methodology and points out some issues with its application to the Czech economy. Section 3 introduces the main indicators used to determine the position of the economy in the financial cycle. Section 4 details the CNB's approach to setting the buffer rate and discusses its decision-making process, which draws on stress test results and known facts about the morphology of the financial cycle. The section 5 concludes.

2. THE COUNTERCYCLICAL CAPITAL BUFFER ESSENCE AND THE BCBS/ESRB METHODOLOGY

The recent financial crisis revealed that stress in the financial sector can easily spread to other sectors of the economy. Faced with capital shortages due to losses, banks in some countries severely curtailed the supply of credit even to sound non-financial corporations (a situation generally referred to as a "credit crunch"). In response to these funding constraints, some firms had to cut their production substantially. This led to rising unemployment, falling household incomes and, in turn, to a deepening recession. Inadequate capital creation by banks in the upward phase of the financial cycle was thus reflected in a downward spiral where falling aggregate demand due to difficulties in raising funds for viable projects led to further credit losses and further lending constraints. In some countries, public money had to be used to resolve the crisis in the banking sector. This was reflected in growth in long-term interest rates and also adversely affected the real economy. To avoid a repeat of the spill-over effects of such shocks from the financial sector to the real economy, a countercyclical capital buffer (CCyB) has been incorporated into the macroprudential policy toolkit (BCBS, 2010). The CCyB is aimed at "protecting" banks against excessive impacts of the financial cycle, which banks themselves are involved in creating. In the spirit of this regulation, banks are meant to set aside a sufficient buffer in good times – characterised by rapid credit growth accompanied by relaxation of credit standards and growth in property prices – to cover losses arising from the switch to the downward phase of the financial cycle. The buffer should be released when risk materialises, so banks should be able to apply a reduced capital requirement to maintain the supply of credit to the sound part of the real economy. As adverse shocks can occur unexpectedly, the macroprudential authority can set a new CCyB rate with immediate effect when deciding to release the buffer. The addition of a CCyB rate to the overall capital requirement may help tame credit growth in the expansion phase of the financial cycle; however, this can be regarded only as a positive side-effect of the CCyB and is not the main purpose of creating the buffer.[1] The primary objective is still to boost the banking sector's resilience to adverse shocks at times of financial instability and to ensure smooth funding of the real economy through the financial cycle. The CCyB is a new macroprudential tool and there is limited experience with its use so far. A universally shared approach to the introduction of non-zero CCyB rates and the setting of their specific level has yet to emerge in the international regulatory community. Some macroprudential authorities view the CCyB as a tool that should only be applied in a strongly expansionary phase of the financial cycle when systemic risks are already clearly visible. Other macroprudential authorities prefer a more prudent approach in which the CCyB should be created right at the start of a credit recovery or at a certain level even in the neutral phase of the cycle. Five countries in the European Economic Area had set non-zero CCyB rates by November 2017 (ranging from 0.5 to 2.0%). The basic framework for applying the CCyB was formulated by the Basel Committee on Banking Supervision (BCBS) and subsequently introduced into EU regulatory practice through the CRD IV directive and its transposition into the Member States' national legislation. The European Systemic Risk Board (ESRB) further developed the core principles of the original framework in the form of a recommendation (ESRB, 2014).

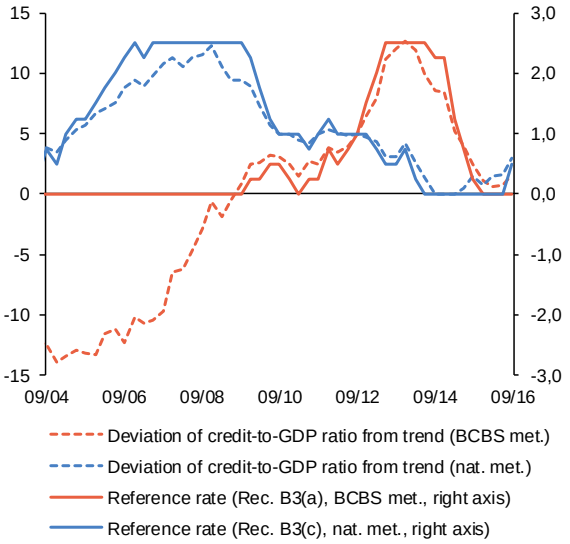
[1] There is no clear consensus across the economic community on whether the creation of a capital buffer will give rise to a reduction in the supply of credit by banks. Financial sector representatives often assert that higher capital requirements lead to a decrease in the supply of loans (see Admati et al., 2011). Based on an analysis of data for advanced countries, however, Gambacorta and Shin (2016) find that better capitalised banks have lower funding costs and are capable – especially in worse times – of lending more to the economy than banks with lower capitalisations. For that reason, efforts to constrain credit growth should not be the main motivating factor in CCyB rate decisions.

From the operational macroprudential policy-making perspective, though, the BCBS/ESRB methodology still represents only a very rough guide to when to introduce a buffer rate and what rate to set. For this reason, it needs to be further elaborated and tailored to the specifics of each national financial sector.



Note: Dark blue boxes indicate mandatory elements and light blue boxes voluntary elements of the ESRB (2014) methodology for setting the CCyB rate.

Figure 1: The logic of the BCBS/ESRB regulatory framework for setting the CCyB rate (BCBS, 2010, ESRB, 2014)



(deviation in pp; right axis: rate in % of RWA)

Note: The trend in the BCBS methodology is estimated using the HP filter, lambda = 400,000. The trend in the national methodology is estimated by analysis of local extremes.

Chart 1: The credit-to-GDP gap and the hypothetical CCyB rate under the national and BCBS methodologies (CNB)

The BCBS/ESRB methodology can be summarised into four main steps (see the dark blue boxes in Figure 1). The first involves determining the deviation of the credit-to-GDP ratio from its long-term trend using the Hodrick-Prescott (HP) filter and then using that gap to set a so-called benchmark buffer rate. In the BCBS/ESRB methodology, this rate serves as a guide for setting the CCyB rate.[2] EU Member States are required publish a credit-to-GDP gap and a benchmark buffer rate quarterly every time they set a CCyB rate. However, they are given discretion to calculate the CCyB guide rate using a different method not necessarily based on the BCBS methodology (see the light blue boxes in Figure 1). This discretion is allowed because the original BCBS methodology would produce incorrect recommendations in many countries if applied mechanically (see, for example, Geršl and Seidler, 2011). This is true for the Czech Republic, where the use of this methodology would have implied a significantly non-zero benchmark buffer rate as from 2011 Q2 and the maximum rate of 2.5% in 2013 Q2 (see the solid red line in Chart 1). During 2013, however, loans recorded only weak growth, property prices continued to fall in year-on-year terms (as they had done since 2009 Q1) and credit standards were tightened further. These conditions can hardly be interpreted as an expansion

[2] Total credit comprises total loans to the private non-financial sector (households, non-financial corporations and non-profit institutions serving households) plus debt securities issued. The recommended smoothing parameter for the HP filter, λ, is 400,000. The benchmark buffer rate is 0% of risk-weighted assets if the gap is less than or equal to 2 pp and is greater than zero if the gap is larger than 2 pp. The equation used to calculate the rate on the basis of the gaps is: benchmark buffer rate = 0.3125*(gap) – 0.625. The benchmark buffer rate is 2.5% if the gap is greater than or equal to 10 pp. The resulting benchmark buffer rate should be calibrated in steps of 0.25 pp or multiples thereof.

phase of the financial cycle. The main sources of the misleading results of applying the BCBS/ESRB methodology in the Czech economy are a structural break in the time series related to the 1990s banking crisis, when bad loans were written off from banks' balance sheets, and the existence of a specific trend typical of converging economies. The ESRB (2014) recommendation takes such cases into consideration and allows the gap calculation to be tailored partially to the specifics of the national economy. In line with this, the CNB calculates additional gaps that may be more appropriate for macroprudential decision-making. One of these is a credit-to-GDP gap based on a shorter time series excluding the structural break that occurred in the 1990s. Another is based on the ratio of bank loans to GDP and disregards other sources of credit financing (unlike the BCBS/ESRB methodology). Restricting the calculation to bank loans is logical since the CCyB is a tool targeted at the banking sector and at ensuring stable bank lending. In addition to gaps calculated using the HP filter, the authority can apply an alternative method for determining the deviation from the trend which eliminates some of the known issues with the said filtration technique. This method is based on analysis of local extremes[3] in the time series. This eliminates the problem of the removal of old loans from banks' balance sheets after the late-1990s crisis and (unlike the HP filter) does not lead to changes in the trend estimate as new observations come in. The corresponding gap (referred to as the expansionary credit gap) is very different from the original signal and much closer to the true course of the financial cycle (see the solid blue line in Chart 1). Regardless of the estimation technique, however, the credit-to-GDP gap is just an initial guide to the position of the economy in the financial cycle. The credit-to-GDP ratio is only a very rough measure of leverage in the economy, on the basis of which it is hard to identify turning points between phases of the financial cycle in a timely manner (for more details, see Frait and Komárková, 2012, pp. 14 and 22).

3. KEY INDICATORS

For the reasons given in the previous section, the recommendation of the ESRB (2014) requires national authorities to take into account other variables indicating excessive credit growth and the build-up of system-wide risk when setting the CCyB rate. To this end, the CNB uses the following set of indicators, which are assessed in section 4.2 of this Report. The composite financial cycle indicator (FCI, Plašil et al., 2016) plays an important role in determining the position of the economy in the financial cycle. The FCI was created in order to measure the accumulation of risks in the financial sector and to provide an early warning (6–8 quarters ahead) signal of the potential materialisation of such risks (see Chart 2). The FCI includes indicators covering a wide range of demand and supply factors which, according to earlier studies and expert judgement, well characterise the cyclical swings in financial risk perceptions.[4] Decomposing the FCI into individual factors allows the CNB to identify the determinants of the current evolution of the composite indicator and, where relevant, helps it choose the optimal macroprudential response.

When determining the position in the financial cycle, the CNB also pays increased attention to the dynamics of bank loans with respect to both the stock (overall amounts) and flows (new

[3] To reveal extremes indicating credit expansion, the CNB uses the difference between the present value of the ratio and the minimum value achieved in the past eight quarters. Other time periods were tested but the results remained robust. This analysis is loosely inspired by the definition of the cycle proposed in Burns and Mitchell (1946) and by the unemployment recession gap (Stock and Watson, 2010).

[4] The indicators are credit growth, property prices, lending conditions, sustainability of the debt of non-financial corporations and households, asset prices and the adjusted current account deficit-to-GDP ratio. The IFC takes into account the changing cross-correlation structure and takes its highest values at times of rising synchronisation between all the input signals. The weights of the variables in the composite indicator are calibrated so that the indicator best predicts the loan impairment losses observed in the Czech banking sector (i.e. the risk materialisation phase).

business) of credit. The dynamics of the stock of loans provide information on the evolution of overall leverage, while the dynamics of new loans indicate current tendencies in risk-taking by households and non-financial corporations. In addition to credit dynamics, the CNB focuses on other areas linked closely with lending, most notably the property market and the potential for a spiral between property price growth and growth in house purchase loans. Rising property prices can give the impression that the financial benefits of buying a house are increasing and can thus motivate other households to buy property financed by mortgage loans. Besides the annual rate of growth of property prices, the CNB tracks measures of overvaluation and sustainability relative to economic fundamentals (e.g. the price-to-annual wage ratio, the price-to-income ratio and other indicators presented in more detail in Hlaváček and Hejlová, 2015).

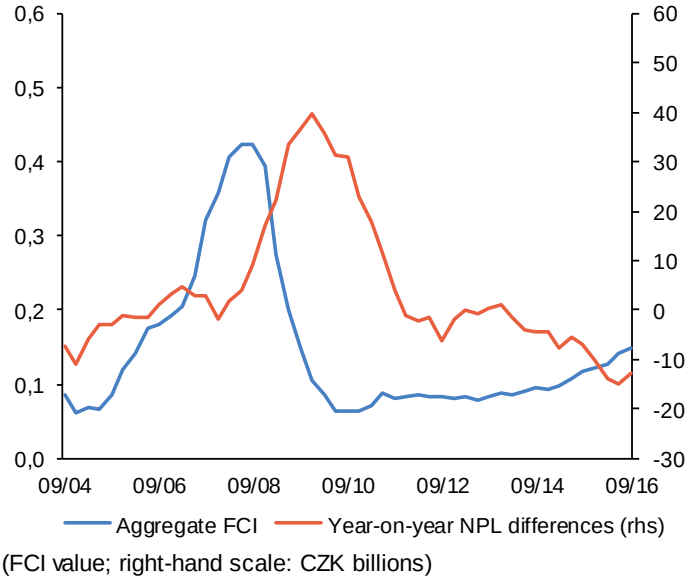


Chart 2: The composite FCI and risk materialisation (CNB)

4. DECIDING UPON THE CCYB RATE

The CCyB rate decision-making process is largely formalised and has clearly defined rules. For the reasons described in detail in section 2, however, the CCyB rate cannot be set in a purely mechanical fashion. The CNB's approach is thus one of "guided discretion", requiring, in addition to regular assessment of the main indicators, a great deal of expert judgement on developments in the financial sector. The entire process is illustrated in simplified form in Figure 2. In the initial phase, the CNB needs to judge whether the current CCyB rate is commensurate with the observed situation (the blue area in Figure 2). The CNB thus has to decide whether conditions in the economy necessitate the introduction of a non-zero rate and, if so, whether a tightening or easing of macroprudential policy is needed. This phase of the process is based on the CNB's assessment of the position of the economy in the financial cycle as well as other aspects such as the settings of other CNB tools whose effects might partially overlap with those of a non-zero rate. Given the complexity of the financial cycle, expert judgement is a necessary part of our considerations about the appropriateness of the current CCyB rate. If the CNB concludes that the current CCyB rate is appropriate, it can confirm it at the current level. If, however, it feels that economic conditions call for a rate adjustment, be it a tightening or an easing, it moves to considering a change in the CCyB rate (the red area in Figure 2).[5]

[5] CCyB rate decision-making here primarily refers to gradually increasing or decreasing the rate. The decision-making process on cancelling a non-zero rate in order to release the buffer can take the form of a rapid reaction to

The aspects taken into account when changing the rate are described in more detail below in this section. Before the final decision is made, expert judgement enters the process once again, and the new CCyB rate is then set on the basis of all the available information (the yellow area in Figure 2).

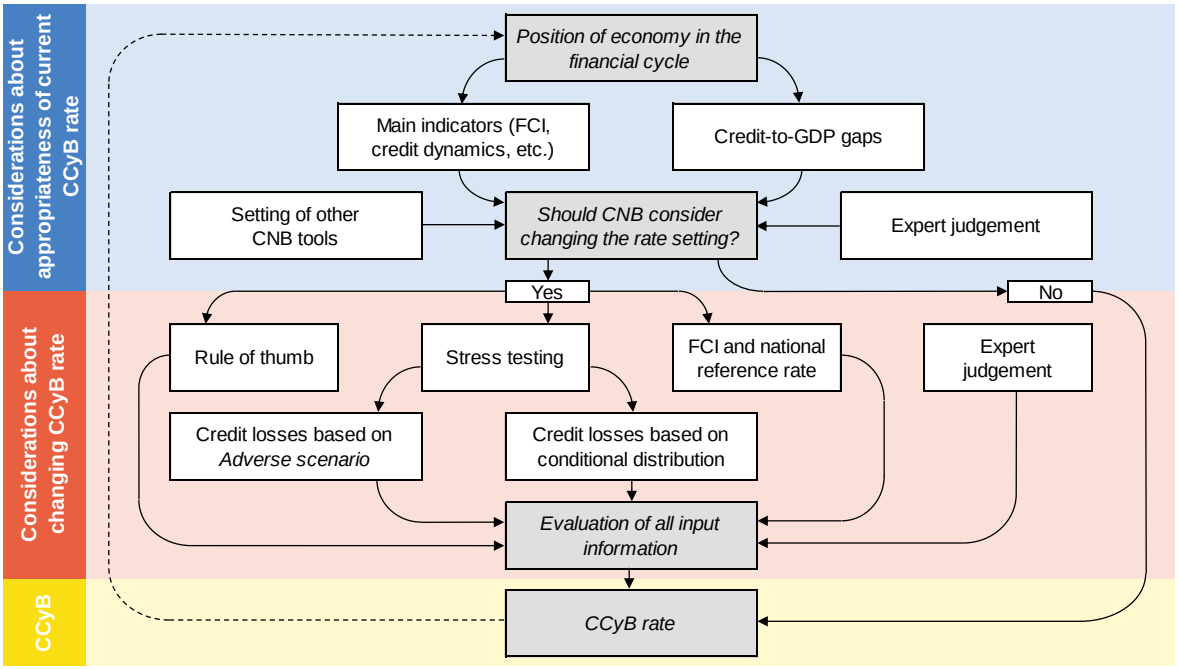


Figure 2: The CNB's approach to setting the CCyB rate (CNB)

Where application of the BCBS/ESRB methodology is not a suitable starting point for determining the rate (see above), other criteria must be taken into account in the decision-making process. The simplest guide for setting the rate is past historical experience and the known facts about the morphology of the financial cycle. The economic literature states that the average length of the financial cycle in advanced countries is around 15 years. The downward phase from the peak to the trough of the cycle is around half as long as the upward phase from the trough to the next peak (see, for example, Drehmann et al., 2012, 2013). Moreover, the upward phase can be divided into a recovery phase, when the subdued economy slowly emerges from the trough of the cycle, and an expansion phase, when credit dynamics surge and systemic risk rises. The two phases are roughly equal in length (see Drehman et al., 2012). On a general level, then, the observed historical experience implies that the economy is in the expansion phase of the financial cycle for around five years on average. When there is a need to build up the CCyB during an expansion phase, a simple rule of thumb based on the ratio of the assumed maximum rate (2.5%) to the assumed length of the expansion phase (five years) can be used. This rule therefore states that the macroprudential authority should increase the CCyB rate by at least 0.5 pp in each year of the expansion phase. Despite being only a rule of thumb, this can be a useful guide for setting the rate given the difficulty of predicting a turning point in the financial cycle at a time when most indicators are not sending out negative signals.

an unexpected shock or an event generating a risk to financial stability (see Figure 7 in Frait and Komárková, 2012, p. 22).

Table 1: The indicative relationship between the FCI values and the CCyB rate (CNB calculations)

FCI values		CCyB rate
from	to	
0,00	0,09	0,00 %
0,09	0,11	0,25 %
0,11	0,13	0,50 %
0,13	0,16	0,75 %
0,16	0,19	1,00 %
0,19	0,23	1,25 %
0,23	0,27	1,50 %
0,27	0,32	1,75 %
0,32	0,37	2,00 %
0,37	0,43	2,25 %
0,42	1,00	2,50 %

Note: The financial expansion observed in the Czech economy just before the global financial crisis started was so strong that it would have necessitated setting the rate at least at the "upper limit" of 2.5% had the tool been available. For this reason, the historical maximum of the FCI is associated with a CCyB rate of 2.5%. The input data are normalised for the FCI calculation, so the historical FCI values constantly change as new data come in.

Note: The table is drawn up on the assumption that the CCyB rate would have been 2.5% during the last crisis. The input data are normalised for the FCI calculation. For this reason, the historical FCI values constantly change as new data come in.

Another rough guide is based on the specific historical experience of the Czech banking sector and on domestic indicators of the financial cycle. On the one hand, the CNB can use the national credit-to-GDP gap and the rate implied by it (see Chart 1). On the other hand, our considerations about the level of the rate can be based on the composite FCI (see section 3 for more details). Table 1 shows the indicative relationship between the FCI values and the CCyB rate. The presented relationship can be formally derived by adopting a set of assumptions, two of which exert a decisive influence on it. The first is that the maximum observed FCI value from the peak of the previous cycle in mid-2008 must correspond to a rate of 2.5%. The second is that the median of the sub-indicators entering the FCI calculation corresponds to a kind of "equilibrium" situation where the financial cycle is neither significantly subdued nor overheating. The FCI is constructed using a quadratic system of weights (for more details, see Plašil et al., 2016), so the relationship between the FCI values and the CCyB rate is non-linear. A consequence of this property is that the bands of FCI values are not necessarily of the same width for all the rates, and it does not hold that an increase in the FCI values leads to a proportional change in the rate. More formal approaches to setting the CCyB rate are based on the idea that the size of the CCyB should ensure that the total capital buffers are consistent with the potential losses that the banking sector as a whole may be exposed to in the event of future stress. A natural way of doing this is to link CCyB rate decision-making with bank stress testing. The crudest option is to compare the overall impact of the adverse shock with the sum of the capital conservation buffer (CCoB) and the CCyB. If the CCoB and the CCyB are not capable of absorbing the simulated decrease in capital at the sector level in the Adverse Scenario, the macroprudential authority may consider raising the CCyB rate to the level at which the capital buffers would be able to absorb it fully. The impact of the adverse scenarios in the CNB's macro-stress tests has

fluctuated around 5 pp of the banking sector's capital ratio in recent years. If this rule were applied purely mechanically, this impact would imply a rate of 2.5% for both buffers. However, this is too crude an approach, among other things because it does not take into account the banks' own prudent approach (e.g. provisioning). A more sensitive option is to compare the credit losses in the Adverse Scenario with the expected losses in the Baseline Scenario. The point of the Adverse Scenario is to test the resilience of the banking sector to an exceptionally large and implausible stress. One could therefore argue that considerations about the CCyB rate should take into account the fact that the probability of such situations occurring varies across the phases of the financial cycle. For example, the probability of a crisis is much higher in a strongly expansionary phase of the cycle than when the subdued economy is just starting to recover. An estimate of the conditional credit loss probability distribution can be used for this purpose. In the case of the conditional distribution, the potential size of the losses (the variance and shape of the distribution) differs depending on the current phase of the cycle. In simplified terms, the risk of a crisis – and hence also the probability of greater cumulative losses in future – steadily increases as the economy moves into the expansion phase of the cycle. To ensure consistency with the most likely outcome, the conditional distribution is constructed in such a way that the expected size of the losses (the expected value of the distribution) always matches the losses in the Baseline Scenario. Owing to the complexity of stress testing, the conditional loss distribution cannot be derived mathematically and must be estimated using simulation techniques. The principle consists in simulating a large number of alternative paths for the stress test input variables and calculating the corresponding cumulative losses for each of them. An empirical estimate of the probability distribution is then obtained by summarising the losses simulated in this way. The technique for generating the alternative paths is based on the maximum entropy bootstrap method (see Vinod, 2006).[6] The size of the deviation of the simulated paths from the Baseline Scenario projection can be regulated by changing the settings of the input parameters of the chosen method. The degree of deviation is set by the CNB depending on the current phase of the financial cycle. The specific values of the time-varying parameters are obtained by solving an optimisation problem taking into account, among other things, the size of the past differences between the losses in the Baseline Scenario and the actual losses. When deciding on the rate, the macroprudential authority can then choose its own level of sensitivity to unexpected events. Like most macroprudential and supervisory authorities in other advanced countries, the CNB prefers a prudential approach, i.e. it tries to ensure that there are sufficient buffers in place to cover even relatively unlikely credit losses. This corresponds to the 99% quantile of the probability distribution. The need to raise the rate is naturally lower in the case of a less strict approach to setting macroprudential tools. For example, if the 60% quantile were used, the difference would be around CZK 7 billion and a CCyB rate of 0.5% would be sufficient to cover this level of credit losses. The relationship between the final rate decision and the stress test results is not entirely mechanical, but it does represent a logical enhancement of the forward-looking principle of macroprudential policy. This approach to applying stress test results to assess whether capital requirements are adequate is also being discussed in the context of the planned EBA guidelines on bank stress testing (EBA, 2015).
Deciding on the CCyB rate setting is not mechanically based on the aforementioned approaches. Instead, it reflects a complex evaluation of systemic risks.

[6] Unlike traditional bootstrap techniques, this method preserves the cyclical properties of the time series and is also suitable for directly simulating non-stationary series. A total of 1,000 bootstrap simulations with a time period of 12 quarters were performed for variables including PD, LGD and growth in bank loans for the sectors of non-financial corporations and households. The LGD values in the simulation are limited as follows: (i) non-financial corporations: 0.45–0.55; (ii) households – loans for house purchase: 0.2–0.3; (iii) households – consumer credit: 0.55–0.65.

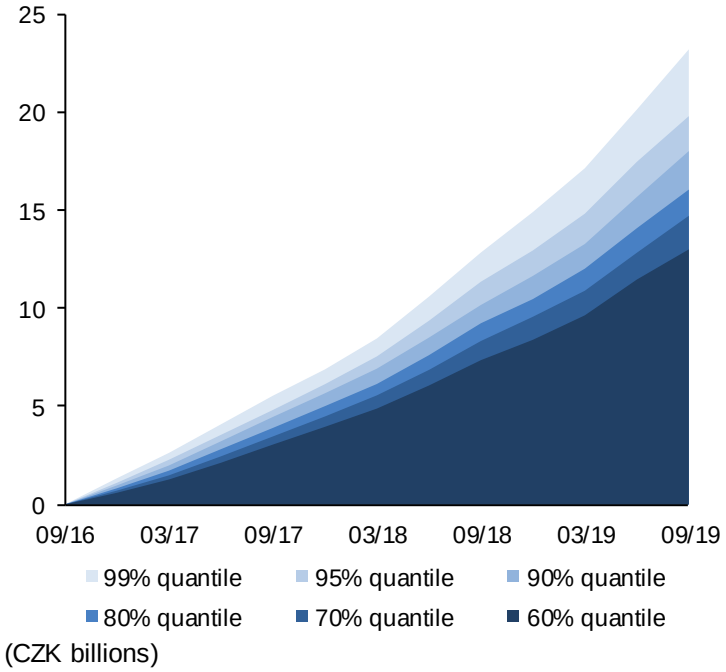


Chart 3: The difference between expected credit losses and alternative quantiles of the credit loss probability distribution (CNB calculations)

5. CONCLUSION

The decision-making process regarding the CCyB rate contains both systematic elements and expert judgement and takes the form of guided discretion. The first step is to assess the position of the economy in the financial cycle. Then the decision-making on the specific level of the CCyB rate has to take into account a wide range of factors, which, in addition to an assessment of the main indicators of the financial cycle, include stress test results and stylised facts about the financial cycle Such approach can be labelled discretion guided by multiple-factor analysis. Putting more weight on formal approaches can only be expected in the future dependent on the accomplishments of research in modelling the financial cycle. It is a major challenge for future research in the area.

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ASSESSMENT OF THE ECONOMIC DEVELOPMENT OF REGIONS IN POLAND USING MULTIDIMENSIONAL COMPARATIVE ANALYSIS

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ABSTRACT

The issue of socio-economic development is of interest to both academics and politicians, self-governments: national and EU. In line with the policy of the European Union, efforts should be made to tackle regional differences in development. For this purpose, we seek ways of measuring the development of regions that serve not only regional but also European comparisons. The characteristic of modern conditions of development is the distinct diversification of the economic potential of individual regions. In recent years, not only the issue of size and causes of economic inconsistencies observed between regions has been of particular importance, but also the analysis of observed changes. The aim of the article is to analyze the level of economic development in Poland and to propose a method of its measurement in the regional perspective. The level of economic development was determined by means of a synthetic developmental index, which was built using an implausible synthetic measure. The Z. Hellwig's reference method was used in this study. Based on the identified synthetic developmental index, the analyzed regions were divided into four groups: 1 - very high level of economic development, 2 - high level of economic development, 3 - low level of development and 4 - lowest level of development. Poland is a country with a great diversity of territorial economic development. The research show that there are regions with high socio-economic potential: Mazovia Region, Lower Silesia Region and Silesia Region; and also very low – Podlasie Region and Warmia – Masuria Region. The largest number of regions was, however, in the group of low socio-economic development.

Keywords: *phenomenon analysis, economic potential, region development*

1. INTRODUCTION

Regional development, and particularly its spatial diversity, is one of the fundamental problems of the modern economy. Equalization of regional disparities in economic development is considered the main objective of activities within the framework of regional policy (Pires Manso, Fernandes de Matos, Carvalho, 2015, pp. 11-31). Regions should be able to adapt to changing market, technological and social conditions. The development itself should be considered as quantitative and qualitative changes that lead the region through stages from the lower to the higher level of development. The main objective of regional policy is to compensate for disparities between individual regions (Murawska, 2014, pp. 80-90).

Regional development refers to positive changes in social, economic, technological, technical and ecological areas that contribute to economic potential growth, competitive position and the higher quality of life of the inhabitants. They point to the need to introduce innovations with the active participation of public authorities, which will ensure economic success (Miłek, Kantarek, 2017, pp. 315-328). Considerations on regional development are widely reflected in the literature of the subject. Regional development is most often understood as irreversible quantitative and qualitative changes aimed at achieving sustainable growth of the region's socio-economic potential (Klasik, Kuźniak, 2001, p. 23). Socio-economic development is a very complex and multifaceted phenomenon. The conditioning of this development creates opportunities for the community of the region in terms of its stimulation, which in turn leads to

an improvement in the quality of life of the inhabitants. The dynamics and character of contemporary socio-economic development processes are marked by distinct spatial and structural differences. The occurrence of these differences in the level of development is not a barrier to development itself. Large disparities in the level of socio-economic development are the problem (Dominiak, Churski, 2012, pp. 54-77). In spite of the large investments, it is still not possible to compensate for the disproportions in the country development that divide the country into an economically strong western part and the less developed eastern part (Warzecha, 2013, pp. 41-55). The aim of this article was to assess the different levels of socio-economic development of Polish provinces in 2013 and 2016 and to identify groups of provinces with a similar level of development. Thirty-eight indices were used in the study to characterize the level of socio-economic development that were systematized according to the following areas: demography and labor market, level of social development, level of economic development and level of technical infrastructure development. Provinces were grouped using the taxonomic method of Z. Hellwig, distinguishing regions with the highest, high, low and lowest level of development. The method allowed to identify changes in the socio-economic development processes of Polish regions in 2013 and 2016. The year 2013 was the reference point for demonstrating changes in socio-economic development.

2. SOCIO-ECONOMIC DEVELOPMENT OF THE REGIONS

Economic development should be understood as quantitative long-term and dynamic changes in economy as well as transformations of a qualitative nature, including structural dimension (Tomaszewicz, Świeczewska, 2011, pp. 36-47). Economic development contributes to boosting the economy to a higher functioning level through the implementation of technical progress. Economic development depends on the following factors (Gołaś, 2014, pp. 7-22):

- internal (rational use of productive factors, creative attitudes and actions of entrepreneurs, implementing innovations in the form of product and process innovations, often reforming the whole economy);
- external (pro-economic structure of the economy and of the market, active state innovation policy, mobilizing to create new ideas on the basis of science and practice achievements in the form of rationalizing ideas, inventions or utility models as well as economic integration and well-developed and functional technical infrastructure).

The difference between the growth and economic development consists in assigning the latter qualitative characteristics. Hence, economic development determines holistic changes taking place over a long period of time in the economy (Adamowicz, Janulewicz, 2012, pp. 17-28). Development is a sequence of targeted and irreversible changes taking place in the structure of complex objects. Development should be understood as a targeted change in the economy, according to certain principles and values. (Piontek, 2006, p. 18) Economic development also means the process of change in the economy caused by the development of productive forces, which entails both quantitative and qualitative changes in relations and production methods (Dyba, 2017, pp. 215-229). Socio-economic development is the broadest concept that encompasses the development trend of a given territorial unit. A significant difference between economic growth and socio-economic development is the pursuit of elevating the quality of society's life through a long-term process that involves qualitative changes. It is considered as a systematic improvement of living conditions of the population, an increase in social and cultural benefits based on comprehensive social progress and the universality and equality of access to social facilities (Głuszczuk, 2011, pp. 68-80). Socio-economic development processes always occur in a strictly defined space. They can be referred to different territorial levels, e.g., local, regional or national. The promotion of socio-economic development on the regional scale is an important problem (Nazarczuk, 2013. pp. 21-23).

It is defined mainly through the prism of changes in the following components: economic potential, economic structure, natural environment, infrastructure management, spatial order, inhabitants' quality of life and spatial development (Blażek, Hampl, 2009, pp. 75-92). In economics, attention is drawn to the fact that economic development is a major factor in regional development and it stimulates the development of its other components. (Potts, 2010, pp. 713-725) Regional development indices are essential for the effective regional policy development. There are no definite solutions to studying and measuring the development of the regions, and previous studies proposed different sets of instruments (Dunnell, 2009, pp. 18-19). The approach presented in the article highlights the development of the region as an integral part of the entire national economy. Therefore, the success of the socio-economic development of the country is determined by the development of individual regions.

3. SELECTION OF DIAGNOSTIC FEATURES AND RESEARCH METHODOLOGY

In order to effectively measure the level of socio-economic development of the regions, it is necessary to indicate study areas and select appropriate diagnostic variables. The scope of analysis included in the study covered the following four substantive areas reflecting successive aspects of development:

- demography and labor market;
- level of social development;
- level of economic development;
- level of technical infrastructure development.

The following demographic and labor market characteristics were selected:

1. population per 1 sq. km;
2. natural growth per 1 thousand people;
3. migration balance per 1 thousand people;
4. registered unemployment rate [%];
5. working in the national economy per 1 thousand people;
6. number of university graduates per 1 thousand people;
7. working in the industry per 1 thousand people;
8. working age population in total population [%];
9. proportion of working in industry and construction in total employment [%];
10. proportion of working in the private sector in total employment [%];

Selected characteristics illustrating demographics and labor market refer to the wealth of human capital in the regions, labor resources and their utilization, and the structure of employment and education.

The following research characteristics were selected in the group describing the level of social development:

1. own revenues of regions per capita [PLN];
2. nominal gross disposable income in the household sector per capita [PLN];
3. number of apartments per 1 thousand people;
4. average apartment usable area m^2;
5. number of physicians per 10 thousand people;
6. number of hospital beds per 10 thousand people;
7. average monthly gross salary [PLN]
8. seats in permanent cinemas per 1 thousand people;
9. number of shops per 1 thousand people;
10. number of passenger cars per 1 thousand people;

11. beneficiaries of social assistance per 10 thousand people;
12. number of crimes per 100 thousand people;

The characteristics describing the level of social development take into account the wealth of the communities of the regions and the quality of life of the inhabitants, which is measured by the level of social benefit satisfaction in the housing industry, health care, culture and infrastructure. The characteristics describing the level of economic development included:

1. GDP per capita [PLN];
2. gross value of fixed assets per 1 working person [PLN];
3. gross added value per 1 working person [PLN];
4. gross added value per 1 person working in the industry [PLN];
5. gross value of fixed assets per 1 person working in the industry [PLN];
6. production sold in industry per 1 person working in the industry [PLN];
7. investment expenditure per capita [PLN];
8. proportion of investment expenditure in industry in total investment expenditure [%];
9. proportion of investment expenditure in the private sector in total investment expenditure [%];
10. number of small and medium enterprises per 1 thousand inhabitants.

In order to determine the differences in the level of economic development of the regions, the analysis involved the characteristics of global production, the degree of space capitalization, labor productivity, the intensity of investment processes, the level of industrial development, the degree of advancement of structural transformations in the economy and the development of entrepreneurship.

The variables determining the level of technical infrastructure development included:

1. public roads with a hard surface per 100 km^2 [km];
2. length of the water supply network per 100 km^2 [km];
3. length of sewerage system per 100 km^2 [km];
4. length of gas network per 100 km^2 [km];
5. operated railway lines per 100 km^2 [km];
6. percentage of population served by the sewage treatment plant in the total population [%].

Variables selected for testing determine, in the scope of technical infrastructure development, the quality of roads, the density of the railway network and the development of water supply network and sewerage network, gas lines and sewage treatment plants. Stimulants were dominant among the adopted variables, only 3 out of 38 characteristics were destimulants: registered unemployment rate, people benefiting from social assistance per 10 thousand people and the number of crimes per 100 thousand people. The last two destimulants indicated the percentage of the poorest population and the degree of threat to public safety. Selected and assumed research characteristics provided the basis for a proper analysis of the diversification level in the socio-economic development of Polish regions. The taxonomic Z. Hellwig's (1968) method was used to assess the level of socio-economic development of Polish regions. It belongs to standard methods (Bąk, 2016, pp. 22-31), because it is based on the construction of the abstract P_0 object called the developmental model. The examined objects are sorted according to the distance from the developmental model, which allows to identify the level of their development. The construction of the taxonomic development measure proposed by Z. Hellwig includes the development of the output matrix of diagnostic variables and the standardization of their values in order to obtain comparable variables (Murawska, 2010, pp.

211-221). In this study, this measure was used to organize the regions in terms of the level of socio-economic development.

The schedule leading to the designation of the synthetic developmental measure of Z. Hellwig consists of subsequent stages.

1. The set of diagnostic variables was divided into stimulants and destimulants, while the latter were substituted to stimulants.
2. In order to adjust the data to comparable values, the standardization of the characteristics was applied according to the formula:

$$Z_{ik} = \frac{x_{ik} - \overline{x_k}}{S_k}$$

for $x_k \in I$ for (i=1,..., n; k=1,...,m) (1)

where I – stimulant set;
Z_{ik} – standardized value of characteristic k for region i;
x_{ik} – value of characteristic k in region i;
$\overline{x_k}$ – arithmetic mean of variable k;
S_k – standard deviation of variable k;
m – number of variables;
n – number of regions.

3. Determination of developmental pattern defined as an abstract object, P_0, characterized by the highest values for stimulatnts, and which has standardized coordinates:

$$P_0 = [z_{01}, z_{02}, ..., z_{0k}] \quad (2)$$

where:

$$Z_{0k} = \max \{z_{ik}\} \text{ – when } x_k \text{ is a stimulant} \quad (3)$$

4. Calculation of the distance between individual regions and the adopted pattern – point P_0, according to the standard (Euclidean distance):

$$c_{io} = \sqrt{\sum_{k=1}^{m} (z_{ik} - z_{ok})^2}$$

where i=1,2,3, ..., n (4)

5. In order to normalize the value of the d_i index, a relative taxonomic development measure was constructed, calculated according to the formula:

$$d_i = 1 - \frac{c_{io}}{c_o} \quad (5)$$

for i= 1,2,3, ..., n
where:

$$c_o = \overline{c_o} + 2 \cdot s_o \quad (6)$$

$\overline{c_o}$, s_o – arithmetic mean and standard deviation of the c_{io} progression, where i=1,2,3,...,n
d_i – synthetic index;

wherein:

$$\bar{c_o} = \frac{1}{n} \cdot \sum_{i=1}^{n} c_{io} \tag{7}$$

and

$$s_o = \sqrt{\frac{1}{n} \cdot \sum_{i=1}^{n} (c_{io} - \bar{c_o})^2} \tag{8}$$

The synthetic d_i development measure (5) obtained based on the calculation assumes values from 0 to 1. Its upper limit is 1, while the probability that it will be less than 0 is low. The closer the d_i value to one, the region is less distant to the standard and is characterized by a higher level of socio-economic development.

4. ASSESSMENT OF THE LEVEL OF SOCIO-ECONOMIC DEVELOPMENT OF POLISH REGIONS IN 2013 AND 2016

Classification according to the synthetic measure, calculated using the Z. Hellwig's method, based on thirty-eight accepted characteristics, indicated that the Mazovia Province was characterized by the highest level of socio-economic development in 2013, the value of the synthetic index for this region was 0.47. It was positioned not very far from the other regions included in the same group (Tab. 1). Lower Silesia and Silesia provinces were in the group of regions with the highest index of development. In contrast, Podlasie and Warmia-Masuria provinces were characterized by a very weak level of socio-economic development, with an index value of 0.11 and 0.05, respectively.

Table 1: Level of socio-economic development of Polish provinces in 2013 (own elaboration)

Ranking	*Province*	*Synthetic index value (d_i)*	*Group*
1	*Mazovia*	*0.47*	*I*
2	*Lower Silesia*	*043*	
3	*Silesia*	*0.43*	
4	*Małopolska*	*0.34*	*II*
5	*Wielkopolska*	*0.32*	
6	*Pomerania*	*0.31*	
7	*Łódź*	*0.28*	
8	*Opole*	*0.22*	*III*
9	*Kujawy-Pomerania*	*0.21*	
10	*West Pomerania*	*0.19*	
11	*Świętokrzyskie*	*0.18*	
12	*Lubuskie*	*0.17*	
13	*Podkarpacie*	*0.15*	
14	*Lublin*	*0.13*	
15	*Podlasie*	*0.11*	*IV*
16	*Warmia-Masuria*	*0.05*	

In the next study period, i.e., year 2016, Mazovia Province was still the most economically strong, the synthetic index of socio-economic development increased by 6 units. The ranking of regional development leaders did not change; the difference was that the Lower Silesia Province strengthened its position as a vice-leader over the period of 3 years. The developmental gap between the Lower Silesian and Silesian regions was 4 points. Minor changes were observed in groups II and III. In some regions, socio-economic development was more noticeable than in others. Podlaskie and Warmian-Masurian regions were still at the end of the ranking. The synthetic index of these regions increased by only 1 point. The overall level of the socio-economic development index increased in 12 regions, while in 4 regions it remained unchanged. There is a large gap in socio-economic development between regions.

Table 2: Level of socio-economic development of Polish provinces in 2016 (own elaboration)

Ranking	*Province*	*Synthetic index value (d_i)*	*Group*
1	*Mazovia*	*0.53*	*I*
2	*Lower Silesia*	*0.48*	
3	*Silesia*	*0.44*	
4	*Małopolska*	*0.39*	*II*
5	*Pomerania*	*0.35*	
6	*Wielkopolska*	*0.34*	
7	*Łódź*	*0.28*	
8	*Opole*	*0.24*	*III*
9	*West Pomerania*	*0.22*	
10	*Kujawy-Pomerania*	*0.21*	
11	*Świętokrzyskie*	*0.18*	
12	*Lubuskie*	*0.17*	
13	*Podkarpacie*	*0.17*	
14	*Lublin*	*0.17*	
15	*Podlasie*	*0.12*	*IV*
16	*Warmia-Masuria*	*0.06*	

The values of the calculated Z. Hellwig's indices for both analyzed years are shown in Figure 1. The calculated synthetic index of socio-economic development of provinces for 2013 and 2016 allowed to distinguish groups of provinces with a similar level of development. The arithmetic mean of the obtained synthetic measures for all regions and standard deviation were used to distinguish the groups. Four groups of regions were identified in this manner (the results of the classification are presented in Tables 1 and 2):

Group I - regions with the highest level of development

$$d_i \geq \overline{d_i} + S_{di}$$

Group II - regions with the high level of development

$$\overline{d_i} \leq d_i < \overline{d_i} + S_{di}$$

Group III - regions with the low level of development

$$\overline{d_i} - S_{di} \leq d_i < \overline{d_i}$$

Group IV - regions with the lowest level of development

$$d_i < \overline{d_i} - S_{di}$$

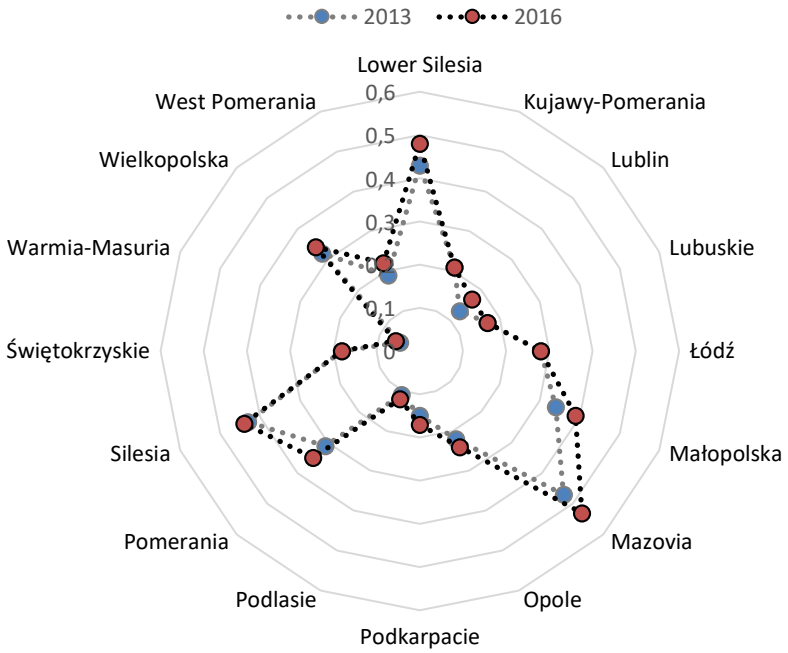
where:

d_i – synthetic index value;

$\overline{d_i}$ – arithmetic mean of the synthetic index;

S_{di} – standard deviation of the synthetic index.

Figure 1: Distance of the regions from the development model according to the method of Z. Hellwig in 2013 and 2016 (own elaboration)



The group with the highest level of development in 2013 and 2016 included Masovian, Lower Silesian and Silesian regions. The second group presented provinces with a high level of development: Małopolska, Wielkopolska, Pomerania and Łódź provinces, but on different ranking positions. The third largest group, which showed a low level of development, included the following regions: Opole, West Pomeranian, Kujavian-Pomeranian, Świętokrzyskie, Lubuskie, Podkarpackie and Lublin. The fourth group with the lowest level of development consisted of Podlasie and Warmia-Masuria provinces. The analysis of the socio-economic development index in 2013 and 2016 showed changes in its level in the majority of Polish regions. The synthetic index for 2016 increased in 12 regions in comparison with 2013. Masovian, Lower Silesian and Silesian regions were leaders in both examined periods. Positive processes were visible in the case of two leaders, the index for the Mazovia Province increased by 6 points, and for the Lower Silesia Province by 5 points. Unfortunately, such changes are not observed among the weakest regions, such as Podlasie and Warmia-Masuria provinces.

5. CONSLUSION

The concept of economic development is multidimensional and difficult to measure. However, it can be measured using synthetic indices. The work attempted to present the level of economic development in Poland using synthetic measures. The Z. Hellwig's reference method was used in this study. The evaluation of positions occupied by particular provinces in the regional structure of the country was based on synthetic measures, calculated using the Hellwig's method for the full set of statistical characteristics as well as characteristics divided into segments. Poland is a country with a high heterogeneity of economic development. The developmental processes in the regions are quite varied. The position of economically strong regions strengthened. It is obvious that the Masovian, Lower Silesian and Silesian regions dominated the rankings in both studied years. The developmental gap between the strongest and the weakest regions was clearly visible. Changes in the group with a high level of socio-economic development were small, the Wielkopolska region swapped places in the ranking with the Pomeranian region. In both analyzed years (2013 and 2016), regions with low levels of

development were still the most numerous group. The Z. Hellwig's method showed significant disparities between socio-economic development in the analyzed regions of Poland (Masovian region in 2016 had an index value of 0.53 and the least developed region of Warmia and Masuria was 0.06). The results confirmed the usefulness of synthetic measures in assessing the level of regional development, but it is important to remember the limitations in their interpretation. The proposed approach to the evaluation of region development in the country should be considered as one of many possible ways of analyzing this issue, which may extend the wide range of instruments used so far. When analyzing the presented results, the specific character of individual regions (agricultural or industrial regions) and their internal differentiation should be borne in mind. However, regional heterogeneity does not relieve regional and national authorities from taking actions aimed at reducing the gap between regions with low levels of development and the strong ones by using endogenous potential and strong points, with simultaneous support of external measures, such as European Union funds.

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THE CREDIT-TO-GDP GAP: EVIDENCE FROM ARMENIA[1]

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ABSTRACT

According to the Basel III capital regulation framework, macroprudential authorities may order accumulation of countercyclical capital buffers in the period when systemic risks are building up. And within this framework the size of capital buffer depends on the magnitude of the credit-to-GDP ratio gap. As the credit-to-GDP ratio gap cannot be observed in practice, there is quite some debate on what this variable actually looks like. Rather than taking the standard statistical approach of using a Hodrick-Prescott filter to estimate it, this paper separates trend from cycle via Bayesian estimation of a srtuctural model, augmented with an unobserved components model for credit-to-GDP ratio. This gives a model-consistent estimate of the credit-to-GDP ratio gap. It turns out that the benefits of using the model-based approach mainly lie in real time. Model coefficients are easily interpretable, and the credit-to-GDP ratio gap series is consistent with a broader analysis of Armenian economic developments.

Keywords: *macroprudential policy, countercyclical capital buffer, credit-to-GDP ratio gap, unobservable component model, Bayesian methods*

1. INTRODUCTION

The financial crisis has revealed the need for a broader set of policy tools that can be used to alleviate systemic risk. Basel III introduced a countercyclical capital buffer aimed at able to adjust in a time-varying way. According to that rule in a good times, banks will create a capital reserve which can then be used to moderate contractions in the supply of credit by banks in strengthening banks' defenses against the build-up of systemic vulnerabilities. The countercyclical capital buffer is an extension to the regulatory capital framework for banks which policymakers will be times of recession. The credit-to-GDP ratio gap is defined as the difference between the credit-to-GDP ratio and its long-term trend. Borio and Lowe (2002, 2004) first documented its property as a very useful early warning indicator for banking crises. Their finding has been subsequently confirmed for a broad array of countries and a long time span that includes the most recent crisis[2]. The aim of this paper is to estimate excessive private credit using structural model based on characteristics of Armenian economy. Although the Basel Committee on Banking Supervision (BCBS, 2010) has recommended the use of an excessive credit indicator based on the Hodrick-Prescott (HP) filter technique as a guide for setting this buffer, proposed method is not suitable for the emerging economies. HP filter method applied on credit-to-GDP ratio has its drawbacks: a time series trend is dependent to a significant extent on the length of the chosen time series, the calculation is very sensitive to the smoothing parameter (lambda), the existence of "end-point bias" which generates a highly unreliable estimate of the trend at the end of the data period. The motivation for this analysis is to have structural or economic fundamental based model together with Basel Committee's proposed HP filter for Armenian economy. This paper describes a method for measuring and updating sustainable level of credit-to-GDP ratio, which incorporates relevant empirical relationships between actual and potential level of private credit into GDP, non-performing loans, exchange rate movements, capital adequacy ratio, real estate prices and spreads within the framework of a small macro-financial model. Bayesian methods usefully combine

[1] I am grateful to Adam Gersl for helpful comments. All errors and omissions are mine. The views and conclusions presented here are exclusively the responsibility of the author and does not necessarily reflect those of Central Bank of Armenia.

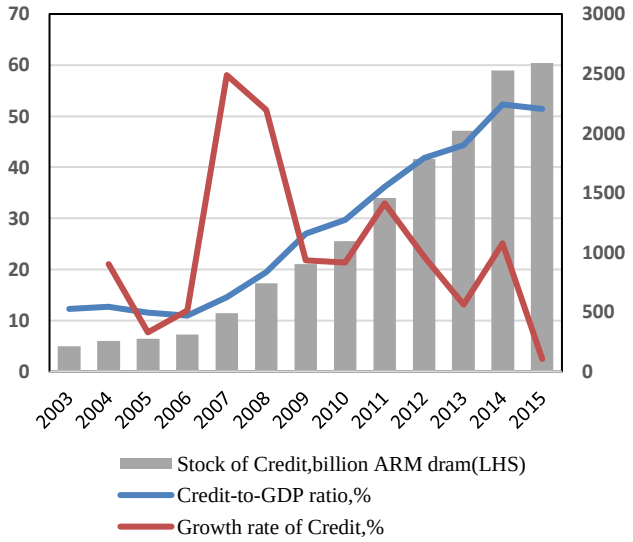
[2] See eg Borio and Drehmann (2009), Fitch Ratings (2010), Behn et al (2013) and Drehmann and Juselius (2014).

information in the data with priors derived from economic theory, producing better interpretable results. In Armenia, observed private credit expansion was driven by both the demand and supply side of the credit market. Although the private credit growth in Armenia started from very low levels, the rate of growth has raised concerns about how sustainable such growth is and whether it poses significant risks to the stability of the financial systrm. From the other hand rapid credit expansion may simply mean convergence to values typical of the advanced nations, and not excessive borrowing (see Figures 1 and 2). Section 2 describes the possible consequences of excessive credit growth on macroeconomic stability and Basel III regulatory framework for creation countercyclical capital buffers. Section 3 outlines the small macro-financing model. Section 4 illustrates the techniques for estimating parameters, and latent variables. Section 5 highlights the results of estimation and section 6 makes a conclusions.

2. DOMESTIC CREDIT BOOM

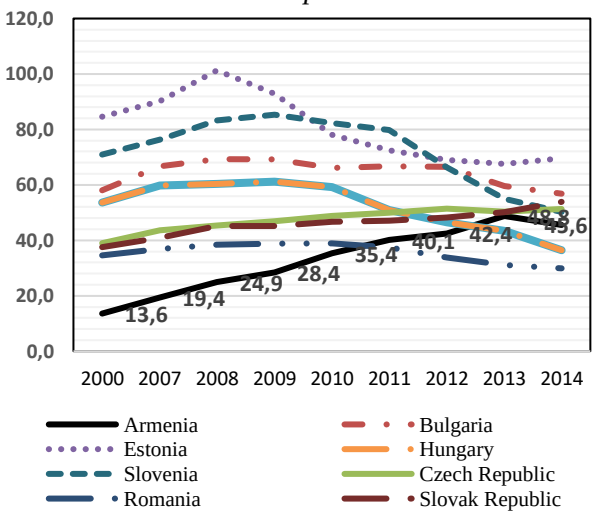
The private credit boom in Armenia was strong enough to raise concern about whether it was a case of excessive growth posing a risk to financial stability or whether this trend was simply a manifestation of convergence to the average credit levels in advanced countries, or (see Figure 1). Despite the comparatively strong private credit boom observed in 2003–2015, the stock of was still relatively low, especially in comparison with Central and other European countries (see Figure 2).

Figure 1: The dynamic of private credits



Source: CBA, author's calculations.

Figure 2: The Dyniamic of Credit-to GDP Ratio in Armenia and Central, Eastern European Countries



Source: WB, author's calculations.

Excessive credit growth can threaten macroeconomic stability in many ways:

- Growth in private sector loans can over-stimulate aggregate demand and cause the economy to overheat, with knock-on effects on inflation, the current account deficit, interest rates and the real exchange rate.
- During upward phases of the business cycle, over-optimistic expectations about borrowers' future ability to repay their debts very often lead to rise in bad loans.
- In a high dollarized country like Armenia, exchange rate risk easily could turn into credit risk: in case of domestic currency depreciation, the volume of credit expressed in the domestic currency rises and debt servicing costs go up.

- If domestic credit boom is financed from foreign sources, the risk of the domestic banking sector having insufficient balance-sheet liquidity increases. In economic bad times, domestic banks face a high risk of outflows of short-term foreign funds that cannot be financed by the sale of liquid assets.

A bursting of the credit bubble, negative macroeconomic developments and increasing growth in non-performing loans can therefore cause the banking sector serious difficulties. The excessive credit growth can be considered one of the most reliable indicators of future problems in the banking sector (Borio and Lowe, 2002; Borio and Drehmann, 2009; Jimenez and Saurina, 2006; Saurina et al., 2008). Basel III regulatory framework for banks, (BCBS, 2010) has proposed several tools for smoothing the procyclical behaviour of the banking sector. One of the key tools is a proposal for banks to create countercyclical capital buffers during credit booms. Such buffers, expressed as a percentage of risk-weighted assets (RWA) and covered by high quality capital, would be set by the regulator within the range of 0% to 2.5%. The capital buffer would start to be created when the credit-to-GDP ratio gap exceeded 2 percentage points. If the gap reached 10 percentage points or more, the buffer would reach the aforementioned maximum of 2.5% of RWA. As a guide for the setting of the buffer, the Basel Committee is proposing to use credit-to-GDP ratio estimated using the HP filter and also use other methods to calculate the trend and other variables, such as the prices of various relevant assets and credit conditions. The reason for giving such discretion to the regulators is that a simple filtering technique would in many cases not necessarily lead to reliable estimates of excessive credit (BCBS, 2010b). In bad times, this capital buffer would be "released" in order to slow any fall in the credit supply and thereby reduce the procyclicality of the financial system. The primary aim of the buffer, however, is not to restrict credit growth, but to create a capital reserve to give the banking sector greater protection from sudden changes in the credit cycle. At the same time, the Basel Committee documents emphasize the complementarity of this buffer with other macroprudential tools (BCBS, 2010b, p.5), such as various limits on key indicators of borrowers' ability to repay loans.

3. MODEL AND ESTIMATION PROCEDURE

The HP filter method is used quite often to determine trends in macroeconomic variables. This method is also used to obtain long-term trend of credit-to-GDP ratio (Borio and Lowe, 2002; Borio and Drehmann, 2009, Hilbers et al. 2005). But this method does have its drawbacks: a time series trend is dependent to a significant extent on the length of the chosen time series, the calculation is very sensitive to the smoothing parameter (lambda), and "end-point bias" which generates a highly unreliable estimate of the trend at the end of the data period (BIS Quarterly Review, March 2014, p 67, Edge and Meisenzahl (2011)). Macroprudential policy, which, by contrast, requires assessment of the trend on the basis of current (i.e. end-of-period) data, would therefore be reliant on indicators subject to a high degree of uncertainty. The main criticism of the HP filter technique, however, is that it does not take into account economic fundamentals that affect the equilibrium stock of loans.
For this reason, the existing literature suggests using structural models.

A. Model specification

The credit-to-GDP ratio gap ($CR\_GDP_t^{gap}$) is the difference between actual credit-to-GDP ratio (CR_GDP_t) and potential credit-to-GDP ratio ($CR\_GDP_t^{trend}$).

$$CR\_GDP_t^{gap} = CR\_GDP_t - CR\_GDP_t^{trend} \quad (1)$$

The spread gap ($Spread_t^{gap}$) is the difference between actual ($Spread_t$) and potential spreads ($Spread_t^{trend}$). The spread is defined as a difference between weighted average of (more than 1 year) loan rate and short term deposit (31-60 days) rate.

$$Spread_t^{gap} = Spread_t - Spread_t^{trend} \quad (2)$$

The Non-Performing Loans ratio gap (NPL_t^{gap}) is the difference between its actual (NPL_t) and potential (NPL_t^{trend}).

$$NPL_t^{gap} = NPL_t - NPL_t^{trend} \quad (3)$$

For other variables in model such as output, real estate prices, capital adequacy ratio and exchange rate, gaps are calculating in a same way: the difference between actual and trend variables.

B. Laws of Motion for Equilibrium Variables

The changes in potential credit-to-GDP ratio ($dCR\_GDP_t^{trend}$) depends on the underlying trend changes of potential spread ($dSpread_t^{trend}$), and on trend growth rates of real estate prices $dR\_Estate_t^{trend}$:

$$dCR\_GDP_t^{trend} = \alpha_{11} dCR\_GDP_{t-1}^{trend} - \alpha_{12} dSpread_t^{trend} + \alpha_{13} dR\_Estate_t^{trend} + \varepsilon_t^{dCR\_GDP\_trend} \quad (4)$$

The idea behind (4) equation is that sustainable increase of real asset prices and sustainable reduction of credit spread creates space for sustainable credit growth. A stochastic process that includes transitory shocks ($\varepsilon_t^{dCR\_GDP\_trend}$) as well as more persistent shocks, provides a useful empirical description of the history of equilibrium credit-to GDP ratio. The changes in potential level of spread, capital adequacy ratio and NPL, the trend growth rates of real estate prices, exchange rates follow a damped autoregressive process. The potential output depends on the underlying trend growth rate of potential GDP, which is not constant and follows serially correlated deviations (long waves) from the steady-state growth rate.

C1. Credit-to-GDP Gap Equation

Credit-to-GDP ratio gap is comprised by the following specifications:

$$CR\_GDP_t^{gap} = \alpha_{21} CR\_GDP_{t-1}^{gap} - \alpha_{22} Spread_t^{gap} + \alpha_{23} Y_t^{gap} + \varepsilon_t^{CR\_GDP\_gap} \quad (5)$$

This specification is basically a demand for credit. Thus, higher lending spreads reduce the credit gap and a higher output gap comes along with a higher credit gap. Other factors (e.g. demand shocks) driving the credit-to-GDP ratio gap are summarized in the stochastic term $\varepsilon_t^{CR\_GDP\_gap}$. The output gap is an autoregressive process.

C2. Spread Gap Equation

Spread gap is comprised by equations that translate levels of non-performing loans (NPL_{t-1}^{gap}) level and a banking system capital adequacy ratio (regulatory capital/risk weighted

assets: CAR_{t-1}^{gap}) into lending spreads. Both of them, NPL_{t-1}^{gap} and CAR_{t-1}^{gap} follow an autoregressive process. The idea behind these reduced form equations is that commercial banks increase lending rates when facing higher potential losses in the future and when holding more regulatory capital as a share of their risk weighted assets. An assumption behind this is that commercial banks keep their ROE roughly invariant to changes in potential losses they face and to the composition of their portfolio and bank capitalization which in turn affect the capital adequacy ratio. Thus, I propose the following specification:

$$Spread_t^{gap} = \beta_{21} Spread_{t-1}^{gap} + \beta_{22} NPL_{t-1}^{gap} + \beta_{23} CAR_{t-1}^{gap} + \varepsilon_t^{Spread\_gap} \quad (6)$$

C3. NPL Gap Equation

For NPL gap I propose the following specification:

$$NPL_t^{gap} = \gamma_{21} dNPL_{t-1}^{gap} + \gamma_{22} ER_t^{gap} - \gamma_{23} Y_t^{gap} + \varepsilon_t^{NPL\_gap} \quad (7)$$

The idea behind this specification is that episodes of economic activity expansion come along with decreases in the level of NPL's as debtors default less. Notice that the negative effect on NPL from exchange rate depreciation is consistent with a high dollarized country case, like Armenia. The gap of exchange rate follows an autoregressive process. The impact from the output gap and exchange rate movement to NPL is key in this model to make the financial sector and the real sector interdependent.

4. ESTIMATION TECHNIQUE AND USED DATA

Univariate filters have many shortcomings. Most importantly, they ignore relevant economic information, which can create large biases. The above model is estimated by regularized maximum likelihood (Ljung, 1999) using Iris, a toolbox for estimating macro-financial models based on Matlab. This estimation procedure obtains the most likely estimates of the credit-to GDP gap ratio given our initial priors on parameters. It interprets the data on NPL, spread, CAR, exchange rate, real estate price and real GDP through the lens of the model outlined above. The regularized maximum likelihood procedure will thus find the best estimates conditional on the above model. The posterior estimates of parameters are then a combination of the initial priors and an adjustment to make those priors more consistent with the model. The following assumptions were made in the estimation: First, the steady state economic growth rate was set to 4 percent, the priors for steady-state parameters were set to reflect specific features on the Armenian economy. I also estimated the model with different steady state and prior assumptions and found that the results were not very sensitive to those. All priors[3] for coefficients in the model are distributed according to beta distributions conditional on other parameters of the model, and subject to restrictions. Although parameter estimates are not the main focus of this study, I do discuss them briefly. First, note that most posteriors differ substantially from the priors. Together with the observation that all posterior standard deviations are smaller than the prior ones, this suggests that the data are quite informative about the parameters. Priors for variances of shocks are also relatively non-informative and proportional to modeled time series (see Table 1).

[3] Except the variances of transition shocks which are distributed according gamma distribution.

Table 1: Prior and Posterior estimation

Parameter	Prior Mode	Posterior Mode	Parameter	Prior Mode	Posterior Mode
α_{11}	0.850	0.841	γ_{21}	0.700	0.684
α_{12}	0.100	0.092	γ_{22}	0.900	0.956
α_{13}	0.025	0.029	γ_{23}	0.550	0.551
α_{21}	0.600	0.612	ρ_1	0.850	0.853
α_{22}	0.150	0.139	ρ_2	0.700	0.726
α_{23}	0.120	0.107	π_1	0.800	0.798
β_1	0.700	0.713	π_2	0.700	0.705
β_{21}	0.600	0.622	η_1	0.700	0.750
β_{22}	0.250	0.190	η_2	0.500	0.510
β_{23}	0.100	0.096	τ_1	0.900	0.912
γ_1	0.750	0.802	τ_2	0.500	0.511

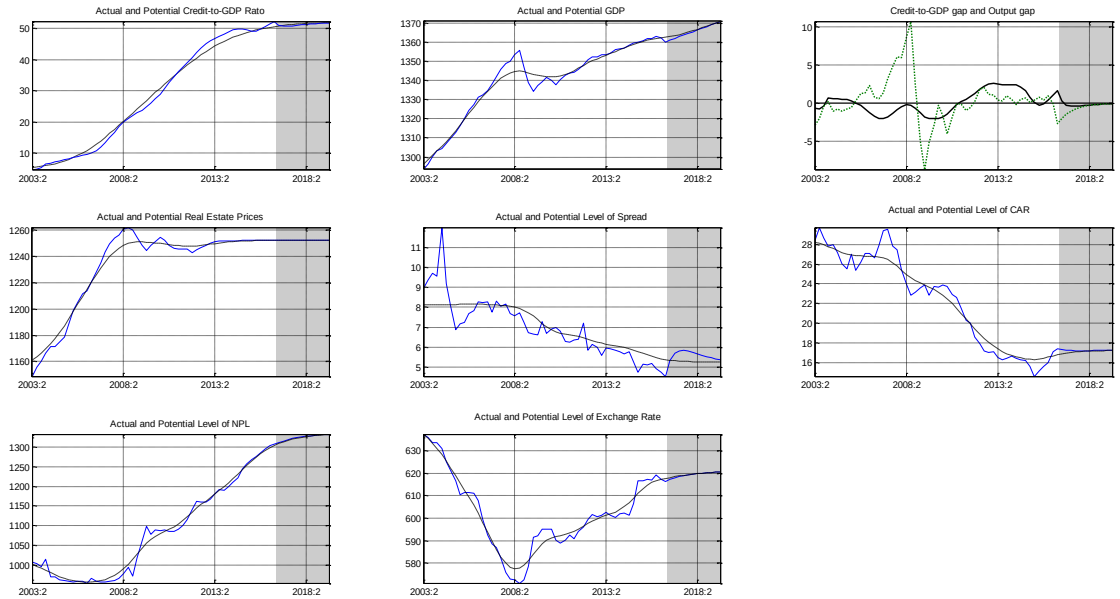
Source: author's calculations.

The model is estimated using quarterly data for 2003 Q2 to 2016 Q3 subject to standard adjustments.Time series are provided by the Central bank of Armenia (CBA), National Statistical service of Armenia (GDP, real estate prices). Real GDP series is logged and seasonally adjusted using Tramo/Seats.

5. RESULTS

Figure 3 illustrates the results for potential and actual level of credit-to-GDP ratio, output, real estate prices, spread, CAR, NPL, exchange rate and credit-to-GDP ratio and output gaps. The toolkit for the Bayesian estimation also provides forecasts of the model variables (shaded areas in the charts). The historical decomposition of Credit-to-GDP ratio gap is shown in Figure 4.

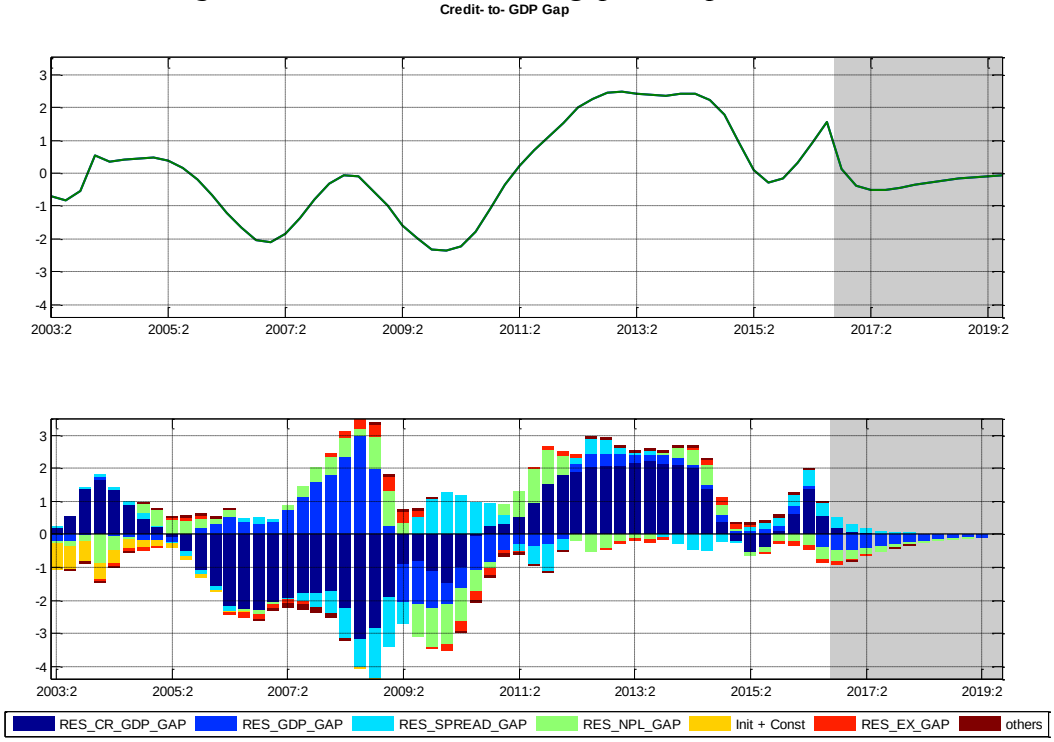
Figure 3: Model-based estimates



Source: author's calculations.

According to the small macro-financial model estimation results, the credit-to-GDP ratio gap indicates excessive credit in the recent periods. The findings show that the credit-to-GDP ratio gap was positive and close to 2.5% from 2011 Q2 to 2015 Q2 and was lower than 2% from 2015 Q4 to 2016 Q3 period. So, the result of countercyclical capital buffer calculation indicate that Armenia doesn't need a countercyclical capital buffer according to small macro-financial model.

Figure 4: Credit-to-GDP ratio gap decomposition[4]



Source: author's calculations.

The results of credit-to-GDP ratio gap decomposition are mainly intuitive, and correspond to our expectations. The credit-to-GDP ratio gap which opened up sharply starting from 2011 Q2 narrowed in 2014 Q4 and turned to negative in 2015 Q2 and opened again 2015 Q4 supported by an accommodating monetary policy stance and a loosening macroprudential policy. The positive shocks to the credit demand during the period 2011 Q2-2014 Q3 was mainly attributed by aggregate demand, low level of NPL and credit spread. For Armenia rapid credit expansion may simply mean convergence to values typical of the advanced nations, and not excessive borrowing. During the 4th quarter of 2014 the impact of developments in global and regional economies had its reflection in Armenian economy, as reduced flows of foreign currency from the outside world and main trade partners' currency depreciation against the U.S. dollar led to an overvalued Armenian real effective exchange rate, creating depreciation pressures in the domestic foreign exchange market. As a result, the nominal exchange rate has adjusted and achieved new equilibrium for economic fundamentals by posting around 14.0% depreciation at the end of 2014. Domestic currency depreciation increased the volume of credit expressed in the domestic currency and debt servicing costs. To weather the situation in the domestic financial market the Central Bank of Armenia worked out a strong response using the bunch of macroprudential and monetary policy tools. The short-term interest rates reacted to the Central Bank's tightening of financial conditions in the financial market by rising interest rates and

[4] In the graph RES_CR_GDP_GAP, RES_SPREAD_GAP and RES_NPL_GAP are the residuals of equations 5, 6, and 7, respectively. RES_GDP_GAP and RES_EX_GAP are the residuals of autoregressive equations of GDP and exchange rate gaps.

credit spreads in the economy. Above mentioned developments narrowed the positive credit-to-GDP ratio gap and made it negative mainly due to increased NPL's and credit spread. Following Central Bank's actions, the currency and product markets were able to see some signs of stabilization then the economy returned to normal conditions and cause to gradually reduction of short-term market rates. Post crisis period credit-to-GDP ratio gap was opened again and was attributed by lower spreads and aggregate demand which provided a boost to credit demand. At the same time, the depreciated domestic currency and higher NPL's remained as negatively contributors of credit-to-GDP ratio gap. These findings have important implications for the macroprudential policy framework in Armenia since they indicate that the Central bank should closely monitor credit cycle with respect to economic fundamentals.

6. CONCLUSION

This paper discusses a new method for calculating excessive private sector credit in Armenia. The Basel Committee on Banking Supervision (BCBS, 2010) has recommended the use of an excessive credit indicator based on the HP filter technique as a guide for setting this buffer, but this methodology is not necessarily appropriate in Armenian case, because of short time series, "end-point" bias and its statistical nature, which could not reflect the evolution of a country's economic fundamentals. The unobserved components approach is used to estimate a credit-to-GDP ratio gap. Consequently, it is possible to feed raw output data into the estimation procedure and to obtain model-consistent estimates of the sustainable level of credit-to-GDP ratio gap for Armenia. This estimation method, based on economic fundamentals, would have better identified the problem of excessive credit growth. Although this calculation technique also has its limitations and could be further developed, it can at least be considered by the macroprudential authority responsible for setting capital buffers as a complementary indicator of excessive credit. It is recommended that national macroprudential authority would consider more than one single indicator and apply the judgements, supported by a variety of analyses that help them to identify the position of the economy in the credit cycle with respect to economic fundamentals. It is crucial to start building a robust, credible and transparent countercyclical capital buffer regime that policymakers will apply through the credit cycle once Basel III is fully implemented.

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ANALYSIS OF ENVIRONMENTAL TAX REFORMS IN SELECTED EUROPEAN UNION COUNTRIES

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ABSTRACT

The Environmental Tax Reform (ETR), also known as ecological tax reform or green tax reform, was first introduced in the early 1990s as a reconsideration of the present tax system, offering countries a mechanism to pursue the environmental goal of reducing carbon emissions while simultaneously cutting the cost of labour to spur job creation. In line with the double dividend hypothesis, this type of reform aims to redistribute tax burdens across the economy in order to nudge society towards a sustainable development path, and increase welfare through better functioning markets. The two key concerns that persist throughout the discussion on green reforms are competitiveness and equity. The limited empirical evidence hailing from ETR and great political difficulty of implementation have thus far significantly reduced the scope of reform, however renewed interest by policymakers ensued after the European Commission recognized the ETR's austerity-time potential in raising less distortionary revenues. Hence, the aim of this paper is to analyse instances of tax shifting through ETR in selected European Union countries, and consequent implications for environmental policy and public finance reforms.
Keywords: *Double dividend, Environmental tax, Green growth, Tax shifting*

1. INTRODUCTION

ETR has gained significant traction amongst policy makers in recent years, as it presents a framework promising to boost efficiency of existing taxation systems, which have arguably been dragging economic growth, and simultaneously addresses key social objectives such as those pertaining to the environment. The idea of ETR is to construct a "reform of the national tax system where there is a shift of the burden of taxes, for example on labour, to environmentally damaging activities such as resource use or pollution" (European Environmental Agency, 2012). While the idea of imposing taxation to address environmental objectives is not necessarily new, the ETR debuted an explicit attempt to redistribute tax burdens across an economy in order to nudge society towards a sustainable development path and increased welfare through better functioning markets. The theoretical proposition of ETR is that it improves the efficiency of the tax system by levying less distortionary taxes. For instance, energy is an attractive tax target since it is relatively inelastic, particularly in the short run, and hence levying taxes on energy will not result in major behavioural distortions, as is the case with value added tax (VAT) or personal income tax (PIT). The economic crisis reinvigorated the discussion on tax shifting, with the European Commission (EC) suggesting ETR holds potential as an austerity policy tool given its revenue raising ability and growth friendly double dividend prospective. ETR is based on the double dividend hypothesis, advanced by Tullock in 1967, and states that environmental taxes be implemented instead of revenue raising taxes to generate a primary dividend of welfare gain due to environmental improvement, along with a secondary welfare dividend arising due to the reduction of distortions in the taxation system (Pearce, 1991). This welfare improvement is in Europe most often associated with employment gains. In addition, Porter suggested that good quality

regulation, including taxation, can lead to innovation, as companies will pursue technological development to be more productive and lower their environmental tax bill (Porter & van der Linde, 1991). While such policies were popular in the 1990s amongst Nordic countries and a handful of other Central or Eastern European (CEE) members, a larger scale implementation has yet to happen, with governments seemingly shying away from formal ETR commitment due to industry competitiveness and equity concerns. Sectors that are most vulnerable to the potential loss of competitiveness due to higher costs of production are energy intensive, internationally oriented, and without price setting ability; while equity concerns stem from regressive tendencies of energy and heating taxes, as they pose a relatively larger burden on low-income households. Hence, the aim of this paper is to analyse instances of tax shifting through ETR in selected European Union (EU) countries, and consequent implications for environmental policy and public finance reforms. The paper is structured as follows: section 2 provides country level analysis of successful ETR implementation, section 3 outlines the circumstances of countries that have failed to realise ETR, and findings are summarised in the conclusion.

2. COUNTRIES THAT IMPLEMENTED ETRs

ETR gained traction in the EU in the 1990s, as there was a paradigm shift away from using environmental taxes solely for revenue raising purposes, but to also address growing climate change concerns. At the same time, several Western economies were struggling with high levels of unemployment and were looking for ways to boost their economies. Six EU countries committed to explicit ETRs between 1990 and 2000, more specifically Sweden, Denmark, the Netherlands, United Kingdom, Finland, and Germany. At the time, according to European standards, these countries had average energy efficiency and jointly accounted for approximately 9% of world carbon emissions (Hoerner & Bosquet, 2000), however had above average levels of labour taxation. Most ETR packages pursued the environmental goal of reducing carbon emissions by taxing transportation activities and direct private energy consumption, while cutting employer social security contributions (SSC) to lower the cost of labour and thus spur job creation. This paper selected for analysis ETR programmes in Denmark, the UK, and Germany, as they respectively represent the largest, smallest, and most researched green reform to date in the EU.

2.1. Denmark

Denmark was one of the first European countries to introduce an explicit ETR and is regarded to have achieved the largest tax shift, amounting to 3% in terms of GDP and 6% of total tax revenue (Bosquet, 2000). With already existing energy taxes on electricity consumption, coal, and oil products, Denmark introduced a CO2 tax on consumption of energy products in 1992 for households, and 1993 for businesses. The reform itself was structured in three distinct phases (Andersen et al., 2007):

Phase I was introduced in 1992 and covered the period 1994–1998. While the focus of this phase was the household sector, businesses, and subsequently special tax provisions, were also included. Between 1993 and 1995, industry faced a reduced, 50% lower tax rate on CO2 of 50 kroner (DKK) per tonne of CO2, which was supplemented by a three-tiered reimbursement scheme based on energy intensity of businesses. Refunds were to be awarded based on actual energy costs paid relative to total sales. Marginal tax rates on personal income were decreased resulting in revenue loss of approximately 45 billion DKK or 2.3% of GDP in 1998. To offset the income tax revenue depletion, the newly established CO2 tax and other environmental taxes raised revenues in the amount of 1.2% of GDP, while payroll taxes, stemming from increased employment, provided increased revenues of 1% of GDP.

The CO2 tax accounted for the majority of the 7.5 billion DKK raised from increasing energy taxes, while 4.5 billion DKK came from introducing smaller-base taxes, such as a wastewater tax, tax on tap water, and tax on paper and plastic bags.

Phase II was introduced in 1995 and covered the period 1996–2000. This time, the focus was industrial energy consumption, which was targeted by levying a reformed CO2 tax, a newly introduced sulfur (SO2) tax, and to a smaller extent a natural gas tax. In turn, employers' SSC were reduced (i.e. employers' contributions to the additional labour market pension fund were reduced via increasing the government reimbursement amount by 159 DKK) and subsidies for investment in energy efficiency programmes were introduced, combining for tax shifting of 2.54 billion DKK or 0.2% of GDP in 2000. The same year, 85% of tax revenues were recycled back to industry and only 13% to households (Speck & Jilkova, 2009). The industry refund scheme from phase I was readjusted, where industrial energy consumption was now subdivided into heavy processes, light processes, and space heating. Space heating was to be taxed at the same rate as households (i.e. full energy and CO2 tax rates), while other activities were exempt fully from energy taxes and enjoyed reduced CO2 tax rates.

Phase III was introduced in 1998 for the period 1999–2002 and was designed to be revenue positive in the amount of 6.4 billion DKK or 0.3% of GDP in 2002, and revenue neutral in the long run. As this third phase was associated with raising energy taxes (natural gas by 33%, electricity by 15%, diesel by 16%, coal by 12%, petrol and fuel oil by 5–7% between 1999–2002), the programme targeted mainly households, since industrial energy consumers only paid energy taxes on space heating. The tax shift increased the above-mentioned energy taxes, and to a lesser extent corporate taxes, while reducing personal taxes, such as taxes levied on pension savings yields, and corporate tax on share yields.

All three phases of the Danish tax reform employed a recycling mechanism clearly distinguishing the contributions of households and industry, ensuring that no cross-subsidisation occurs i.e. each economic sector receives back the amount they paid due to reforms in the form of tax cuts. For households, the implemented ETR was found to be regressive, as the newly implemented green taxes reduced the after-tax disposable income of the poorest decile by 0.5 percentage points more than of the richest decile (Wier et al., 2005). This effect was even more pronounced for rural households. However, this policy reduced CO2 emissions by 24% between 1990 and 2001, with industrial producers reducing CO2 emissions per unit by 25% (Withana, ten Brink, Kretschmer, Mazza, Hjerp, & Sauter, 2013). At the same time, no effect on the competitiveness of firms was found, as energy intensive industries were granted tax rebates of around 75% and the cost of labour was reduced by 1.4 percentage points between 1995 and 2000 (Speck & Jilkova, 2009).

2.1.1. Post-ETR development

Following the 2001 parliament election, the Danish right wing government introduced a total tax freeze between 2002 and 2007, decreasing the real value of environmental tax rates until 2008. In that year, the Danish government proposed the 'Spring Package 2.0', which was meant to be a ten year (2010–2019) ETR programme geared towards helping Denmark achieve greenhouse gas emission reductions of 40% in 2020 compared to 1990, and tackle the rising labour costs. Akin to the earlier ETR phases, PIT would be reduced while energy and transport taxes increased. Following the election of a new government, along with a report by the Ministry of Economic and Business Affairs expressing concerns that additional taxation could damage industrial competitiveness, the 'Spring Package 2.0' was re-worked to lower overall taxation levels by 55% compared to the original plan. This proposal was later repealed and a

new act was accepted lowering energy taxes on electricity used for heating (by 1 billion DKK), as well as increasing income taxation (by 3.4 billion DKK). Environmental fiscal reform in Denmark took a further step back in 2013, when politicians agreed to an economic growth plan, which eliminated two taxes on electricity and lowered energy taxes for business processes to the prescribed EU minimum rate (Danish Ecological Council, 2014). These political developments are reflected in the trend of labour and environmental tax receipts in Figure 1.

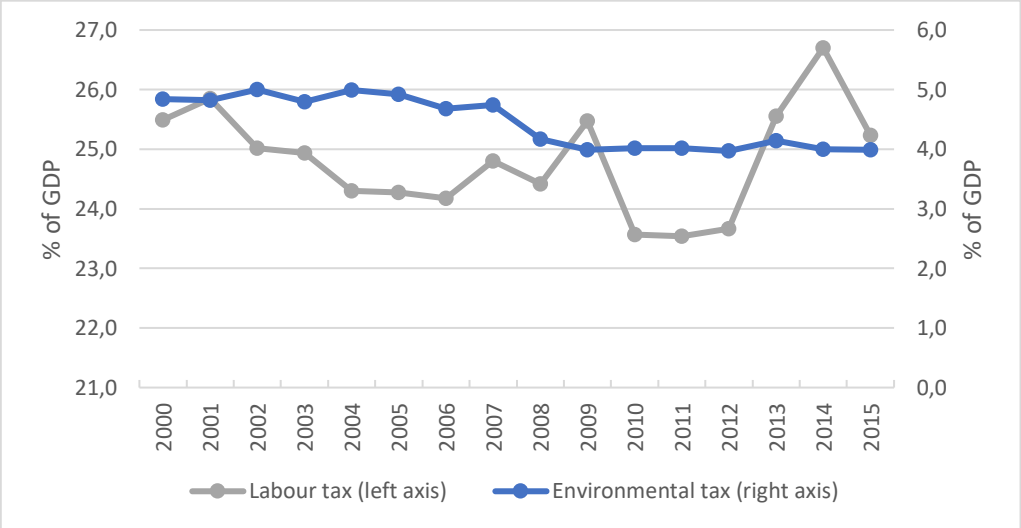

Figure 1: Labour and environmental tax revenues in Denmark, 2000–2015 (Eurostat, 2017)

2.2. United Kingdom

The UK deviated from other countries in that it introduced three, relatively small scale ETRs, all of which were designed to target businesses rather than households. In turn, it offered a reduction in employers' national insurance contributions. In 1996, a Landfill Tax was introduced as part of the first ETR, charging businesses and local authorities for disposing waste in landfills (84.4 GBP per tonne of waste). Revenues were intended to reduce employers' SSC, with a small fraction earmarked to establish a special fund supporting investment in waste related research and activities. The scope of this ETR however was fairly minor, shifting only 0.05% of GDP in 2005 (Andersen et al., 2007). The second ETR, planned to be the largest of the three programmes, was based on the Climate Change Levy (CCL) that was introduced in 2001. The CCL is applied to electricity, gas and solid fuels (e.g. coal, lignite, coke, and petroleum coke). While revenue neutrality was initially planned, the CCL was revenue negative between 2001 and 2007, as the levy generated less revenue than needed for the provisioned reductions in national insurance contributions (Andersen et al, 2007). This ETR shifted 0.06% of GDP in 2005 and approximately 0.1% in 2010 or 5.23 billion GBP. Some economists link this to the fact that the CCL was only levied on industrial and commercial use of energy, while at the same time energy intensive companies were granted tax reductions of 80% if they agreed to legally binding targets for energy efficiency improvement, also known as Climate Change Agreements (OECD, 2005). Ex post analysis showed that these exemptions unnecessarily reduced the scope of the reform, as applying the full tax rate to all businesses would not have negatively impacted economic performance (Martin, de Preux, & Wagner, 2009). In April 2013, a carbon price floor (CPF) was implemented to help achieve revenue neutrality and broaden the tax base. The smallest scale ETR, shifting only 0.02% of GDP, was implemented in 2002 with the Aggregates Tax, which is a tax of 2 GBP per tonne of sand, rock or gravel. Apart from reducing employers' SSC, 5% of revenues were used to establish a special Sustainability Fund (Andersen et al., 2007).

Since all three ETRs were targeting industrial polluters, there is no evidence to suggest regressive consequences of the reforms on households. Furthermore, no negative impact was recorded on GDP or employment, while a positive trend in innovation and energy efficiency was detected (Withana et al., 2013). Overall, CO2 emissions were reduced by almost 25% in comparison to 1990, with energy intensive industry accounting for 30% of this decline (Andersen et al., 2007).

2.2.1. Post-ETR development

The UK has been sustaining its level of environmental receipts in terms of GDP relatively constant since 2000, as seen in Figure 2. Apart from a brief trend reversal during the height of the economic crisis, the tax burden on labour has been declining or sustained at pre-crisis levels. This can be attributed to the way UK designed its ETRs. Rather than defining time frames for each phase of the ETR as was the practice in other countries, the revenue recycling mechanism in the UK is linked directly to a specific levy. Hence, there is an automatic device that earmarks tax revenues from the CCL, Aggregates tax, and Landfill tax for labour taxation reduction and promotion of investments in energy efficiency, rather than it being an exceptional measure.

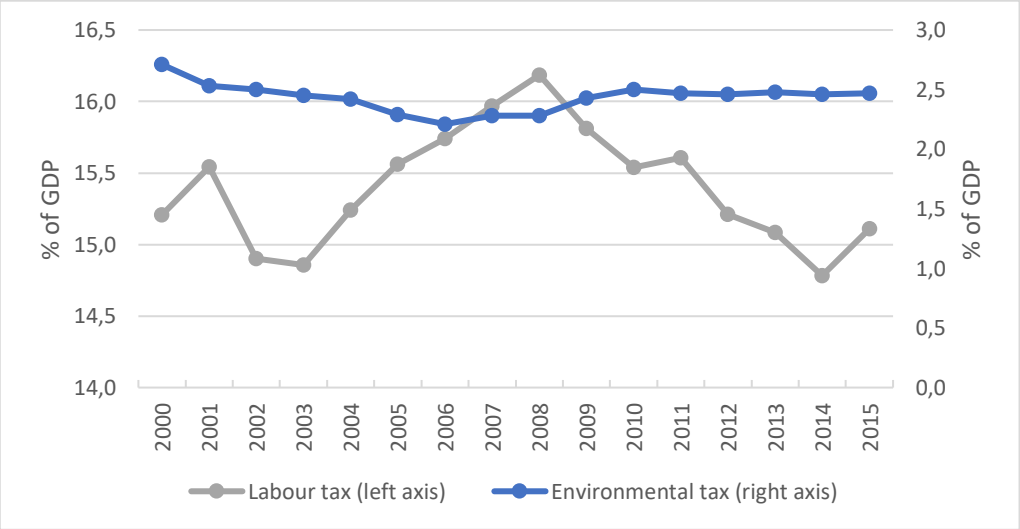

Figure 2: Labour and environmental tax revenues in the UK, 2000–2015 (Eurostat, 2017)

2.3 Germany

Ten years before committing to an ETR, Germany was already levying energy taxes on natural gas (1989), and up to the year 1995 was running an electricity taxation scheme. Known as Kohlepfennig, the scheme levied a VAT differentiated for households and industry, while using its revenues to subsidize the national coal industry (Andersen et al., 2007). After it was abolished in 1995, years of political debate ensued before the energy tax scheme was overhauled and implemented as an ETR in 1999. The reform pursuing greenhouse gas reductions and lower labour costs was executed in two phases (Andersen et al., 2007):

Phase I was implemented in 1999 and covered the years 1999–2003. Both households and businesses were targeted by raising taxes on petroleum products: mineral oil taxes in transport fuels (e.g. petrol, diesel), taxes on natural gas, taxes on heavy fuel oil, taxes on light heating fuel; as well as introducing a new electricity tax. The taxation increase was for the most part done on an annual basis, with smaller increases in tax rates for energy products other than transport fuels, so as to not hamper the competitiveness of the German manufacturing and agricultural sector. While the ETR was designed to be revenue neutral, the government deviated from this policy goal by using 10% of the revenue raised to consolidate the federal budget, and

1% to promote renewable energy. The rest was used to reduce, at an equal rate of 1.8 percentage points between 1998 and 2003, employees' and employers' statutory pension contributions. In total, the scope of the tax shifting reform was 18.6 billion EUR or 0.9% of GDP in 2003, with households carrying 54 % of the tax burden. According to the German Federal Environmental Agency, 250.000 jobs were created, while CO2 emissions and fuel consumption were reduced by 2–2.5% and 7% respectively (Robins, Clover, & Charanjit, 2009).

Phase II was planned to begin in 2004, as a component of the wider scoping greening fiscal reform aimed at disassembling the current system of environmentally harmful subsidies and tax reductions. While these profound reform ambitions were quickly abandoned due to political backlash, amendments to heating fuel tax on natural gas and on heavy fuel oil were successfully made.

By reducing statutory pension contributions, the German government was able to execute this ETR with only minor regressive impacts. The lowest income decile faced a 0.13% reduction in after-tax income, while no change was detected in the upper decile (compared to a respective 1.05% and 0.47% real income reduction when no adjustments are made). Employment was boosted by 0.75% of the active population and GDP growth increased by 0.5 percentage points between 1999 and 2003. Furthermore, the ETR successfully reversed the trend of growing pension contributions, as without the reform they would amount to 21.2 % in 2003 compared to the actual 19.5% (Andersen et al., 2007). The annually staggered tax increases allowed for the German economy to maintain its short-term competitiveness, aided by tax reductions (80% in 2002, 60% in 2003), and a tax rebate scheme. It is important to note that the coal industry, along with non-energetic use of energy carriers, have always enjoyed a special status in Germany. In 1999, the EC also approved a special tax reduction scheme for the German manufacturing industry, with the stipulation that this can only be temporary relief and must be revised before the end of 2006 (Andersen et al., 2007). In order for manufacturing companies to qualify for these benefits, they had to commit to voluntary climate mitigation agreements with the German government, while from 2014 on, they also need to implement an energy management and auditing system (IEEP, 2013).

2.3.1. Post-ETR development

The German ETR was gradually implemented between 1999 and 2003, with little change in energy taxation, apart from some changes in 2006. This is clearly depicted in Figure 3, where environmental taxes are falling in terms of GDP, while labour taxation levels have returned to pre-ETR levels. It is interesting to note that environmental taxes appear to be decreasing, despite the German government imposing new taxes, such as a heavy vehicle charge on motorways (2005), as well as a nuclear fuel and aviation tax (2011). Furthermore, reforms in 2011 cut back environmentally harmful subsidies by curbing the reduced energy tax rates granted to industry, which should have boosted environmental tax receipts (Vivid Economics, 2012).

Figure following on the next page

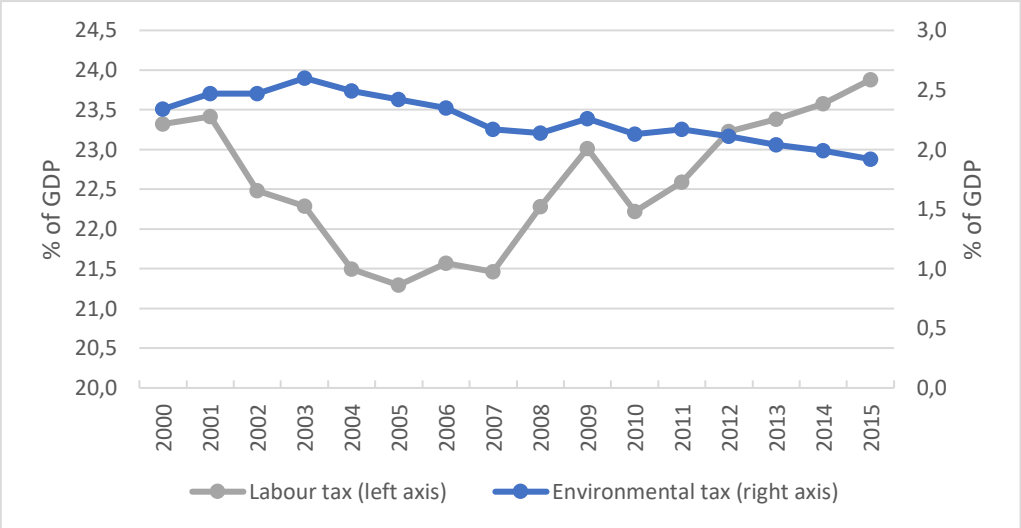

Figure 3: Labour and environmental tax revenues in Germany, 2000–2015 (Eurostat, 2017)

3. COUNTRIES THAT FAILED TO IMPLEMENT ETRs

ETR is a highly divisive policy instrument with little real-life precedent to confirm the theoretically promised benefits, which perhaps explains why thus far only eight EU countries have successfully carried out explicit green tax shifts, despite several countries either implicitly lowering taxes on labour and rising environmental taxes, or drawing up proposals for these reforms only for them to never reach fruition.

3.1. France

France is an example of an old EU member state that has failed to overcome political obstacles in pushing forward an ETR. France first engaged with the notion of reducing labour taxation at the expense of environmental taxes in 1999, when it implemented a tax on pollutants known as Taxe Générale sur les Activités Polluantes (TGAP). This policy aimed to simplify existing fees on oils, waste, air pollution, and noise, while in addition created taxes on gravel extraction and detergents. The revenue from the TGAP was used to reorganize and shorten the working time to 35 hours, de facto reducing labour taxation. The use of TGAP revenues for the 35 hour programme was, however, deemed unconstitutional by the Constitutional court in 2001, and the government failed to introduce a new ETR proposal despite promises to do so in 2002 (Speck, 2008). Moreover, environmental taxes, particularly the CO2 tax, have proved to be controversial for France. Following the legal commitment in Grenelle de l'environnement to re-examine environmental taxes in 2009, the government proposed to tax sectors excluded from the EU emissions trading system. The tax was to be set at 17 EUR per tonne of CO2 in 2010, and follow annual increases to reach 100 EUR per tonne of CO2 by 2030. At the end of December 2009, the French Constitutional Court annulled the carbon tax proposal set to come into force only weeks later, on 1 January 2010, deeming it unconstitutional. The court cited too many tax exemptions and discounts, as the proposed design exempted 93% of industrial emissions. Furthermore, planned compensation schemes for households were found to breach the principle of tax equality (Senit, 2012). Ultimately, after scraping all plans of a carbon tax in March 2010, the French prime minister said that the country will only consider adopting such a tax if it will be part of the EU level energy taxation directive, arguing that otherwise the potential of damaging industry competitiveness is too large of a risk (Ekins & Speck, 2011). Despite failing to implement a carbon tax, France managed to introduce 44 environmental taxes and charges as part of the Grenelle de l'environnement process (Cottrel et al., 2010), which supports the rise of environmental tax revenues in terms of GDP observed in Figure 4.

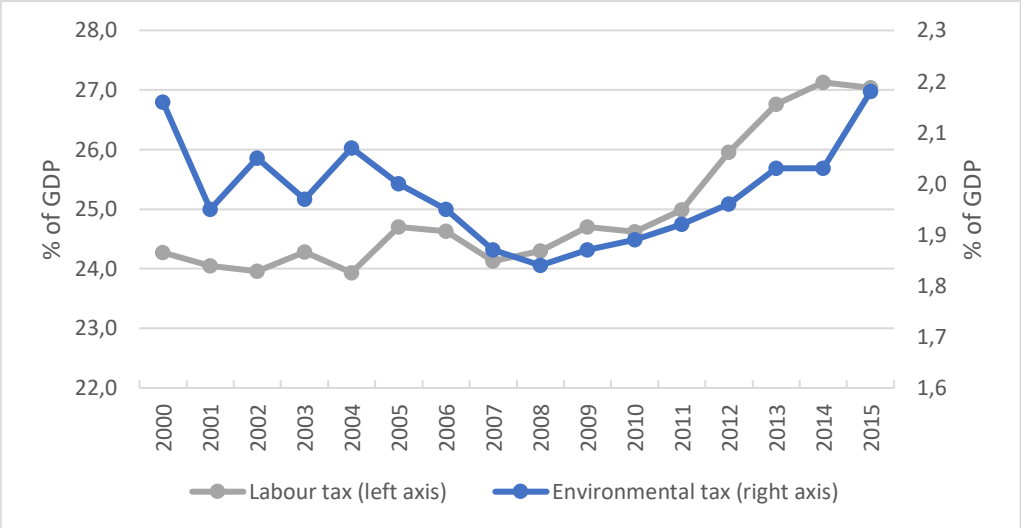

Figure 4: Labour and environmental tax revenues in France, 2000–2015 (Eurostat, 2017)

Alongside rising environmental revenues, France also began to collect higher levels of labour taxes following the financial crisis of 2008. Nonetheless, the main discernible trend in comparison to ETR countries is the volatility of environmental taxes between 2000 and 2007, along with fairly constant labour taxation levels observed during the same time period.

4. CONSLUSION

While outcomes of ETRs are hard to isolate from other policies, the analysis presented above suggests that in general, implemented ETRs were found to have no or a positive employment effect, while successfully reducing emissions. At the same time, no significant loss of competitiveness was detected, however the reforms were in general slightly regressive to the lowest income decile. The scope of tax shifting has been relatively insignificant, with all local ETRs shifting approximately 25 billion EUR, of which the single largest reform was in Demark and amounted to 3% of GDP, while the smallest was in the UK and amounted to only 0.1% of GDP. This limited scale can in part be associated with generous tax exemptions and tax reduction schemes that often excluded the largest polluters from the reform. Empirical evidence has shown that potential downsides of rising environmental taxes for most vulnerable sectors are significantly overstated, and that eliminating several tax exemptions, which have become a de facto component of ETR, would not harm the competitiveness of these firms, but on the other hand drastically improve the efficiency of the reform. The regressive tendencies of ETR design were also successfully curbed in most countries by applying appropriate compensation schemes for lower-income households. Lastly, revenue neutrality, which is a key theoretical aspect of ETR, has been unattainable in practice. Most countries earmarked a portion of their tax revenues for sustainability schemes or to offset budget deficits, as was the case in Germany, thus only recycling a portion of the tax revenues. Nonetheless, ETRs in most countries were ultimately revenue negative due to environmental taxes not fully compensating the revenue outfall from visibly lowering taxes on labour, especially since most reforms suffered from political inconsistency that prevented long run continuity assumed in policy design. Hence, political understanding and policy support independent from the current government is identified as a crucial aspect of successfully formulating ETR in the future.

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CONSUMER CONFIDENCE AND STOCK PRICES IN CROATIA[1]

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ABSTRACT

Consumer confidence plays an important role in predicting macroeconomic and financial variables since it contains consumers' information regarding future economic developments. Optimistic consumers will spend more, thus increasing firms' profits and stock prices. On the other side, increasing stock prices can boost consumer confidence. The aim of this study is to explore the relationship between the consumer confidence and stock prices in Croatia. Due to the absence of a long-run cointegration relationship, a vector autoregression (VAR) model is estimated. Obtained results indicate that an increase in the stock exchange equity index (CROBEX) increases consumer confidence index (CCI) whereby an increase in the consumer confidence index has no effect on the stock exchange equity index.

Keywords: *consumer confidence, stock prices, VAR model, Croatia*

1. INTRODUCTION

It is commonly the view of modern economic science that the state of the capital market is expressed through the movement of stock prices and the movement of the stock index, an important indicator of the economic situation of a particular country. Capital expenditure will depend on the availability and cost of the funds necessary to start the investment. Furthermore, an increase of investments affects production growth, a decline in unemployment, an increase in GDP and overall economic growth. As a consequence of such investments, it is logical to expect the growth of the realized profit and the increased dividend payment, and such an expected increase in future cash flows is reflected in the increase in market price shares. On the other hand, the consumer confidence index (CCI) is an indicator that measures the subjective expectations of consumers about the future economic situation in a country's economy and as such, it is an important indicator of expected future consumer spending. The logic behind this indicator is as follows: if the consumer's position on the future of the economy is positive, such positive expectations will spillover to increased demand for the products and services the businesses offer. Such increased demand will result in a higher degree of utilization of production capacities, if they are not at the level of full utilization, or to increase in product prices if production capacities are fully utilized. In both cases, companies see the possibility of increasing sales levels and achievement of profit with all the repercussions explained in the previous paragraph. Because of such interpretation of capital market trends and consumer confidence index, it is understandable the interest of many scientists, entrepreneurs and creators of economic policy to establish the mutual link between these indicators.

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In addition to the previously established logic of entrepreneurial interest in the mentioned issue, establishing links between phenomena is also important to economic policy creators in terms of defining a transmission channel where specific policy moves can have repercussions on the future state of the economy. Therefore, the objective of this research is to determine the existence and the type of connection between the consumer's perceptions measured through consumer confidence index, and the general trend on the Croatian capital market indicated by the CROBEX stock index. Such a study was carried out for the period from 2009 to 2017 by using the vector autoregression (VAR) model. The rest of this article is organized as follows. In the following chapter, an overview of existing literature is presented, showing comparable researches and their results. That chapter serves as the theoretical background on which the research is based. The third chapter presents the empirical part of this research with defining and describing the research methodology, defining the VAR model and explaining the obtained results. The article ends with concluding remarks on the results in terms of their policy implications and recommendations for future researches.

2. LITERATURE REVIEW

Numerous researches in the past two decades have been attempting to establish a link between the phenomena analyzed in this article. There is no need to discuss too much about the benefits of establishing such a link because they are evident. Moreover, establishing the existence of a statistically significant link that would give investors information on future stock price movements would be of exceptional importance. The fact is, at least in the US economy, that the link between stock index and consumer confidence index exists. Many times in history, it can be concluded that the Consumer Confidence Index, published by The Conference Board, even pointed to changes in stock market trends before the official stock market index S&P500. Similarities in their movement are evident, and the question here is whether the consumer confidence index can be used as an earlier indicator when evaluating general market trends. Several authors have sought to establish the link between CCI and various economic variables. For example, Carroll, Fuhrer and Wilcox (1994), and Ludvigson (2004) have found the link between CCI and real consumer spending. Their research was conducted in the US market using data on the S&P500 stock index and the University of Michigan's Index of Consumer Sentiment for the period from 1955 till 1992, i.e. from 1953 till 2001 respectively. Matsusaka and Sbordone (1995), and Howrey (2001) found the link between the same CCI and gross national product (GNP), i.e. gross domestic product (GDP) in the US economy for the period from 1953 to 1988, i.e. from 1962 to 2000 respectively. Such surveys are significant because they have established statistical significance between real consumer spending, represented by real historical data, and CCI indicator as a subjective predictor of future consumption, and thus the creator of the future state of the economy represented by the GNP and GDP indicators. This is a confirmation of its relevance as an indicator important for the adoption of economic policy measures. The research that will be carried out in this article, however, is related to establishing the link between the CCI indicator and the movement on the Croatian capital market represented by the stock exchange equity index. It is therefore interesting to find out the results of similar researches carried out on data of different countries. Generally speaking, the relationship between the stock index and consumer confidence can be observed through two transmission channels (Poterba and Samwick, 1995; Morck, Shleifer and Vishny, 1990). The first is the traditional wealth effect channel. Its essence is contained in the following reasoning: any changes in the capital market in terms of stock price changes will directly affect the welfare of the household, and such a change of well-being will further affect the expectations about the future prosperity of the household. Thus, any increase in stock prices will increase household well-being and hence the expectation that the future household situation will be even better. The second transmission channel is the "leading indicator" channel, i.e. the confidence channel.

According to this channel, any changes in the stock exchange index are interpreted as an indicator of the future income that the household will have at its disposal, with direct repercussions on the movement of CCI indicator as an indicator of future consumption. Researches that empirically establishes such transmission channels are numerous and mostly underscores the existence of confidence channel. Otoo (1999) came to such a result pursuing research in the US market for the period from 1995 to 1997. Analyzing the movement of the University of Michigan's Index of Consumer Sentiment (as the main US consumer confidence indicator) and Wilshire 5000 stock index, he have found out that US households use stock price changes as indicators of future consumption. Similar research, but on the example of eleven European countries, was carried out by Jansen and Nahuis (2003) for the period from 1986 to 2001. They have also come to a similar result, i.e. that stock price movement have an impact on consumer confidence, but that there are no influence of consumer confidence on the stock price movements. That such a causal relationship persist even in the conditions of the financial crisis, Rakotondramaro (2016) proved on the US example covering the period from 2006 to 2013, i.e. before and after the global financial crisis. Using the Vector Autoregression (VAR) model, he proved the existence of unidirectional long- and short-run causality running from stock prices to consumer sentiment. Görmüş and Güneş (2010) came to the same conclusion on the example of Turkey through the analyzed period from 2002 to 2008. The link between consumer confidence and stock prices can also be observed by establishing the opposite direction of the relationship. Although the causal relationship between consumer confidence and equity prices is theoretically reasonable, there are not so many empirical researches that confirm such a link. Here it is also possible to identify two transmission channels through which consumer confidence can influence the movement of the stock exchange index. The first channel represents the link between the consumer spending and the profits that companies make. The logic explaining this channel is the following: any increase in CCI indicator represent an increase in belief in a future better household situation, where such beliefs are reflected in increased spending. Such increased consumption results in higher profits of the company and consequently rising stock prices (Bram and Ludvigson, 1998; Souleles, 2001). The second transmission channel can be called the "publication effect" channel where the disclosure of forecasting data on consumer confidence itself have a psychological impact on the market and on rising stock prices without a real basis in increased spending (Fisher and Statman, 2002). As the empirical evidence of the above transmission channels and the establishment of a causal link between CCI and share prices, the following researches may be mentioned. Brown and Cliff (2005), Baker and Wurgler (2006) and Lemmon and Portniaguine (2006) can be pointed out as examples of researches conducted on US market analyzing the years from 1960s to the early 2000s. All of them came to the unique conclusion that the CCI has a causal relationship to future stock prices and that such a relationship is inversely proportional. Hence, high sentiment will have a negative effect on future stock returns and vice versa. The same result came from Schmeling (2009) on a sample of 18 countries, and from Grigaliūnienė and Cibulskienė (2010) on a sample of four Scandinavian countries (Sweden, Finland, Norway and Denmark) for the period between 1989 through 2009. It is also interesting to mention the research performed by Hsu, Lin and Wu (2011) which on a sample of 21 countries for the period from 1999 to 2007 demonstrated a double causal link, i.e. they determined the influence of stock price movements on CCI movement, as well as the impact of CCI movement on future stock prices. From the above-mentioned researches it can be concluded that there is no unified view on the direction of the causal relationship between the analyzed phenomenon of consumer confidence and the stock prices. Therefore, a legitime question and the motive for this study are set out, which is to establish their relationship on the example of Croatia. According to the author's findings, researches considering Croatia are only concerned with determining the influence of consumer confidence on the movement of certain

economic variables (Kuzmanovic and Sanfey, 2013), or with the aim of forecasting recession (Erjavec, Sorić and Čižmešija, 2016). That make this research even more scientifically significant.

3. METHODOLOGY, EMPIRICAL ANALYSIS AND RESULTS

Data for selected variables are observed on a monthly basis in the period from May 2009 to October 2017 and Figure 1 shows their movement, i.e. the movement of consumer confidence index (CCI)[2] and stock exchange equity index (CROBEX). It is visible that in the observed period consumer confidence index and stock exchange equity index achieve opposite trends. Namely, the rise in the consumer confidence index is accompanied by a fall in the stock exchange equity index. In order to analyze the relationship between the consumer confidence and stock prices in Croatia, a vector autoregression (VAR) model is estimated[3]. Commonly, VAR methodology is mainly based on Granger causality tests, variance decomposition and impulse response functions. Before defining the VAR model, it is necessary to examine the properties of time series, i.e. the degree of integration since models with nonstationary series can lead to wrong conclusions (Österholm, 2005). For these purposes, Augmented Dickey-Fuller ADF test (Dickey and Fuller, 1979), Phillips and Perron PP test (Phillips and Perron, 1988) and KPSS test (Kwiatkowski, Phillips, Schmidt and Shin, 1992) are considered. In addition, the existence of the long-run relationship between the variables is tested using the methodology proposed by Johansen (1991, 1995). All variables are expressed in their logarithmic form and to eliminate the influence of seasonal factors all series were seasonally adjusted[4]. Results of the unit root tests are shown in Table 1.

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[2] Standardized values.
[3] The OxMetrics 7.20 (Doornik, 2013) and Eviews 10+ (IHS Global Inc., 2017) econometric software are used for the multiple time series analysis.
[4] Using the Arima X12 method.

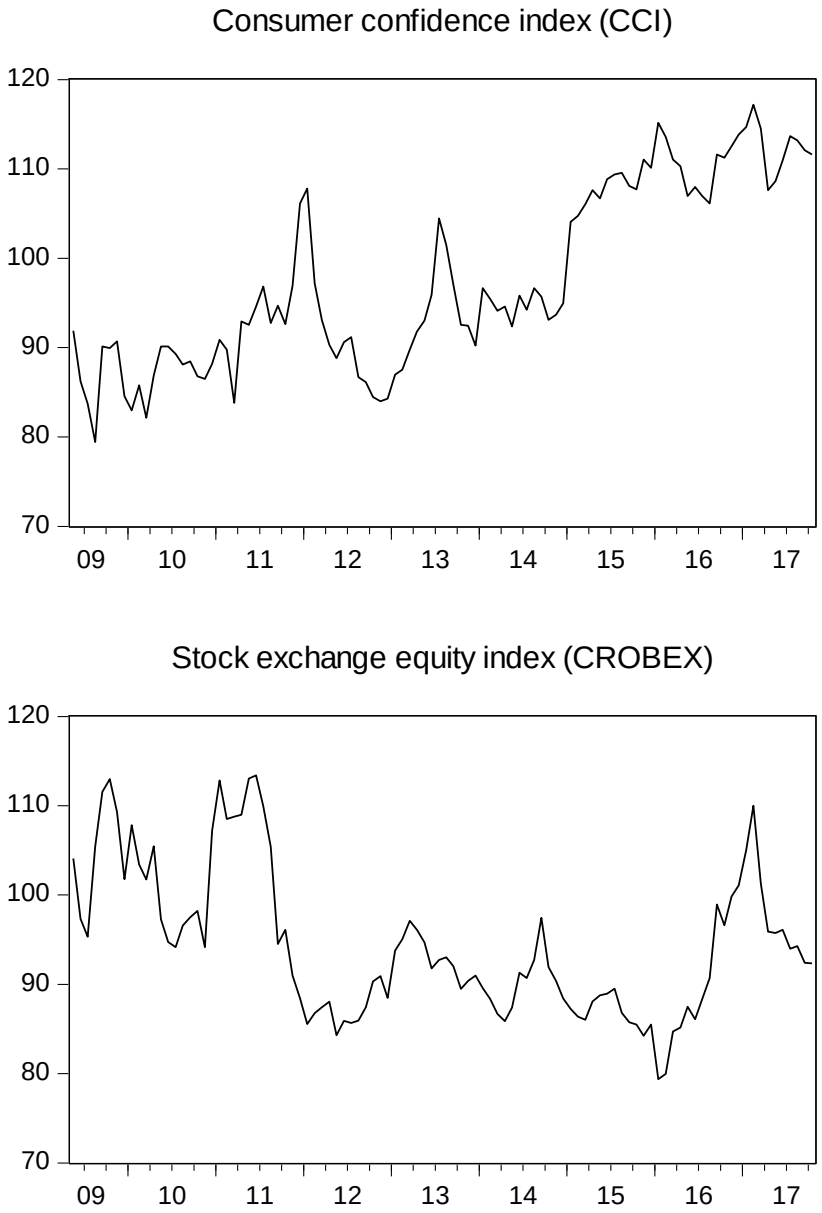

Figure 1. Consumer confidence index (CCI) and stock exchange equity index (CROBEX) (seasonally adjusted)
(Croatian National Bank (2017) and Zagreb Stock Exchange (2017))

Obtained results suggests that both series are integrated of order I(1), i.e. that they are stationary in first differences.

Table following on the next page

Variable and test	Level			First difference	
	Constant	Constant and trend		Constant	Constant and trend
ADF test	**t-stat.**				
LCCI	-1.577899	-3.813794		-10.23441	-10.17728
LCROBEX	-2.399769	-2.493395		-9.602270	-9.548662
PP test	**Adj. t-stat.**				
LCCI	-1.317581	-3.944473		-24.94907	-25.58669
LCROBEX	-2.500318	-2.633581		-9.601756	-9.548037
KPSS test	**LM-stat.**				
LCCI	1.033445	0.140693		0.500000	0.500000
LCROBEX	0.474825	0.151929	0.052562	0.032472	

Table 1. Unit root tests (Research results)

Notes: "L" indicates logarithm of the variable. For the implementation of ADF and PP test, the Schwarz information criterion has been implemented. ADF test critical values: constant: 1% level (-3.50), 5% level (-2.89), 10% level (-2.58); constant and trend: 1% level (-4.05), 5% level (-3.45), 10% level (-3.15). PP test critical values: constant: 1% level (-3.50), 5% level (-2.89), 10% level (-2.58); constant and trend: 1% level (-4.05), 5% level (-3.45), 10% level (-3.15). KPSS test asymptotic critical values: constant: 1% level (0.739), 5% level (0.463), 10% level (0.347); constant and trend: 1% level (0.216), 5% level (0.146), 10% level (0.119).

Number of lags needed for cointegration test is determined using standard information criteria (LR, FPE, AIC, SC and HQ)[5]. All the criteria indicate that the optimal number of lags is one. Results of cointegration tests suggest that the long-run relationship between the variables does not exist[6]. Based on this assumption the following unrestricted VAR model is estimated (Lütkepohl, 2007):

$$y_t = A_1 y_{t-1} + \ldots + A_p y_{t-p} + C x_t + \varepsilon_t \quad (1)$$

where y_t is a vector of endogenous variables, x_t is a vector of exogenous variables, $A_1, \ldots, A_p$ are matrices of lag coefficients, C is a matrix of exogenous variable coefficients and ε_t is a white noise innovation process.

The vector of endogenous variables includes consumer confidence index and stock exchange equity index while the vector of exogenous variables includes constant and several dummy variables. Again, number of lags in the VAR model is determined using standard information criteria. Almost all criteria indicate that the optimal number of lags is one. VAR model diagnostic tests presented in Table 2 include single-equation and vector tests for autocorrelation, ARCH effects, normality and heteroscedasticity. They suggest that the model is adequately estimated with acceptable characteristics.

[5] LR – sequential modified LR test statistic (each test at 5% level), FPE – Final prediction error, AIC – Akaike information criterion, SC – Schwarz information criterion and HQ – Hannan-Quinn information criterion.
[6] The results are not shown in order to preserve space.

Single-equation	*DLCCI:* Portmanteau(12): Chi-sq(11) = 24.160, Prob. = 0.0121 *DLCCI:* AR 1-12 test: F(12, 76) = 1.7364, Prob. = 0.0754 *DLCCI:* ARCH 1-12 test: F(12, 76) = 1.2217, Prob. = 0.2843 *DLCCI:* Normality test: Chi-sq(2) = 0.47702, Prob. = 0.7878 *DLCCI:* Hetero test: F(4, 86) = 1.3215, Prob. = 0.2685 *DLCCI:* Hetero-X test: F(5, 85) = 1.0461, Prob. = 0.3961 *DLCROBEX:* Portmanteau(12): Chi-sq(11) = 12.348, Prob. = 0.3381 *DLCROBEX:* AR 1-12 test: F(12, 76) = 1.2010, Prob. = 0.2982 *DLCROBEX:* ARCH 1-12 test: F(12, 76) = 1.3966, Prob. = 0.1863 *DLCROBEX:* Normality test: Chi-sq(2) = 4.8907, Prob. = 0.0867 *DLCROBEX:* Hetero test: F(4, 86) = 0.57744, Prob. = 0.6798 *DLCROBEX:* Hetero-X test: F(5, 85) = 0.59696, Prob. = 0.7023
Vector	Portmanteau(12): Chi-sq(44) = 60.694, Prob. = 0.0481 Error autocorrelation from lags 1 to 12: Chi-sq(48) = 66.050, Prob. = 0.0429, F(48, 126) = 1.3311, Prob. = 0.1059 Normality test: Chi-sq(4) = 5.5967, Prob. = 0.2314 Heteroscedasticity using squares: Chi-sq(12) = 12.669, Prob. = 0.3936, F(12, 222) = 1.0445, Prob. = 0.4091 Heteroscedasticity using squares and cross products: Chi-sq(15) = 13.513, Prob. = 0.5628, F(15,229) = 0.88286, Prob. = 0.5841

Table 2. VAR diagnostic tests (single-equation and vector tests) (Research results)
Notes: "D" indicates first difference, while "L" indicates logarithm of the variable.

In order to examine the causality between variables VAR Granger causality/block exogeneity Wald tests are applied. Test results are shown in Table 3.

Dependent variable: DLCCI			
Excluded	**Chi-sq**	**df**	**Prob.**
DLCROBEX	6.901822	1	0.0086
All	6.901822	1	0.0086
Dependent variable: DLCROBEX			
DLCCI	1.037106	1	0.3085
All	1.037106	1	0.3085

Table 3. VAR Granger causality/block exogeneity tests (Research results)
Notes: "D" indicates first difference, while "L" indicates logarithm of the variable.

The results indicate the existence of Granger causality going from the stock exchange equity index to consumer confidence index, but not vice versa. The dynamic interdependence among variables in the model is analyzed through the variance decomposition presented in the Table 4. The results indicate that stock exchange equity index affected the variability of consumer confidence index with 6% in t = 2 and 6% after twelve months. Consumer confidence index affected the variability of stock exchange equity index with 1% in t = 2 and 1% after twelve months. In other words, it is visible that the influence of consumer confidence index on stock exchange equity index is insignificant. In order to analyze influence of variables order change, variance decomposition is performed with reverse order of variables in the model. The results are very similar[7].

[7] The results are not shown in order to preserve space.

Variance decomposition of DLCCI		
Horizon (months)	**DLCCI**	**DLCROBEX**
2	94	6
4	94	6
6	94	6
8	94	6
10	94	6
12	94	6
Variance decomposition of DLCROBEX		
Horizon (months)	**DLCCI**	**DLCROBEX**
2	1	99
4	1	99
6	1	99
8	1	99
10	1	99
12	1	99

Table 4. VAR variance decomposition (Research results)
Notes: "D" indicates first difference, while "L" indicates logarithm of the variable.

Figure 2 shows the impulse responses of the consumer confidence index and the stock exchange equity index. It is visible that an increase in the stock exchange equity index increases consumer confidence. However, it is also evident that the effect is losing relatively quickly after the initial shock. On the other side, an increase in the consumer confidence index has no impact on stock exchange equity index. Obtained results are in line with the Granger causality tests and variance decomposition.

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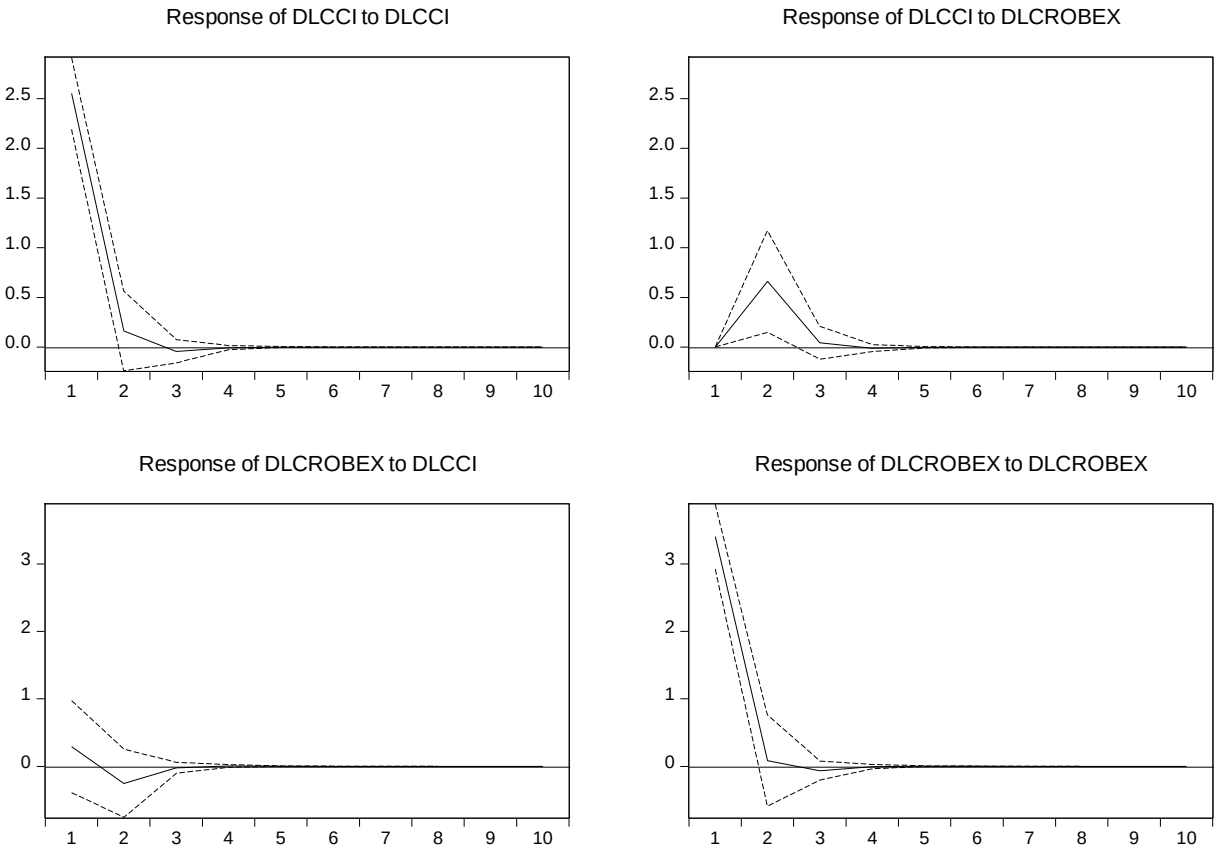

Figure 2. VAR impulse responses to Cholesky one S.D. (d.f. adjusted) innovations ± 2 S.E. confidence interval (Research results)
Notes: "D" indicates first difference, while "L" indicates logarithm of the variable.

4. CONCLUSION

The aim of this study was to analyze the relationship between the consumer confidence and stock prices in Croatia. Results of performed Johansen cointegration tests suggest that the long-run relationship between the consumer confidence and stock prices in Croatia does not exist. Based on this assumption, a vector autoregression (VAR) model is estimated. Granger causality tests indicate that causality goes from the stock prices to consumer confidence, but not *vice versa*. This is further confirmed by the results of variance decomposition and impulse response functions. Impulse response functions indicate that an increase in the stock prices increases consumer confidence. However, this effect is losing relatively quickly after the initial shock. Conducted research found no evidence that would support the possibility of predicting the performace of Croatian stock exchange equity index by using the consumer confidence data. Unfortunately, that means that investors, when deciding on investments in stocks, cannot use consumer confidence as an early indicator of future stock price changes. However, it has been shown that the transmission channel in Croatia behaves according to those found out in most analyzed countries. The proven relationship has its applicability especially to economic policy creators. By adopting measures positively affecting the capital market environment, they may indirectly affect the future growth of the economy. At the end, it is necessary to mention that this analysis has limitations namely because it does not take into account all (or other) variables that affect consumer confidence or stock prices. This is our recommendation for future researches deepening the knowledge in this area.

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PROTECTION OF PERSONAL DATA AND PUBLIC AND PRIVATE SECTOR PROVISIONS IN THE IMPLEMENTATION OF THE GENERAL EU DIRECTIVE ON PERSONAL DATA (GDPR)

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ABSTRACT

New digital econmy is rapidly evolving with continuous growth of the information and communication technologies while the it takes effect on the evolution the new privacy and personal data protection challenges. Data processing, especially processing of personal data,new informatin tools and digital market have developed the need for increasing privacy protection with regards to new digital products and services. The solution is given in the new reform of EU data protection framework called General Data Protection Regulation (GDPR) (Regulation (EU) 2016/679) which takes direct effect in all 28 Member States and replaces and harmonises existing national law requirements. In this paper, the author will present the new EU data protection regulation and the public and private sector provisions in the implementation of the GDPR which will will provide a modernised, accountability based compliance framework for data protection in Europe. The aim of this Regulation is to remove obstacles to cross-border trade and enable easier expansion of businesses across Europe. The new rules will establish one single European law for data protection, replacing the current inconsistent national laws.while eliminating the need to consult with local lawyers to ensure local compliance for the franchised shops. The result will show in direct cost savings and rise of legal certainty in the growing digital economy.

Keywords: *compliance, data protection, data processing, data protection officer, GDPR, personal data, penalties, pseudonymisation, right to be forgotten*

1. INTRODUCTION

With the development of the internet and with the development of new information and communication technologies, security challenges have also emerged. Protection of personal data and protection of citizen's privacy in the new virtual world has become one of the most important topics of scientific and professional discussions. Unfortunately, this new „evolution" of new technologies has also opened the new privacy and security challenges. (Boban, 2012, p 576). As a response to this growing issue, European Union has delivered new General Data Protection Regulation (EU 2016/679 - OJ L 119, 4.5.2016- hereinafter GDPR) comes into effect in May 2018 and it will introduce a number of substantive changes to data protection laws across Europe. The GDPR will require all organisations to review how they collect, hold and process personal information and how they communicate with individuals. Businesses will need to adopt new measures and update their internal processes to demonstrate their compliance with the GDPR. The new rules will be backed up by enhanced enforcement powers and new fines. Also effective "revised" legislation is fold out on national and on EU level following the revision of EU data protection framework which must be closely monitored and the relevance of adopting corrective measures must be assessed in the future. From this point of view, public and private sector provisions will face the challenges in the implementation of the feneral eu directive on personal data (GDPR).

2. NEW TECHNOLOGIES AND NETWORKING SOCIETY IN DIGITAL ECONOMY

According to the European Commission "personal data is any information relating to an individual, whether it relates to his or her private, professional or public life. It can be anything

from a name, a photo, an email address, bank details, posts on social networking websites, medical information, or a computer's IP address." (Blackmer, 2016). In the beginning, before bringing this definition into the digital economy surroundings, in order to understand the complexity of the new technologies, it should be observed in relation to the economy, industry, and other categories of social organization, including culture. When it comes to new information technologies and information and communication technologies (hereinafter ICT) then we should also perceive the social dimension of personal data and citizens privacy form traditional perspective but also form »virtual« world. (Čizmić, Boban and Zlatović, 2016, p 50-55). The new, interactive way of communication that didn't have any spatial and/or temporal restrictions has developed the surroundings of the emergence and development of new forms of business and their wider introduction in the daily work in almost all areas threw information and communication technologies. Such operations however do not exclude the traditional forms and methods of work and business, on the contrary, it complements them and improve. Thus, the development and application of high technologies are becoming strategic objectives and commitment of every advanced society, and their implementation in business processes provided economic and every other progress that defines the new information economy. (Dragičević, Dragičević, 2003, p 358). Rather than refining the definition to include social processes beyond the economy, Castells opinion is that it would be useful, to pinpoint those features that constitute the heart of the information technology paradigm which taken together, form the material foundation of the network society (Castells, 1996, p 70), Furthermore, he has defined the characteristics of this networking economy. The first characteristic of the new paradigm is that information, by his opinion, is its raw material: these are technologies to act on information, not just information to act on technology, as was the case in previous technological revolutions. The second feature refers to the pervasiveness of effects of new technologies. Because information is an integral part of all human activity, all processes of our individual and collective existence are directly shaped (although certainly not determined) by the new technological medium. The third characteristic refers to the networking logic of any system or set of relationships using these new information technologies. The morphology of the network seems to be well adapted to increasing complexity of interaction and to unpredictable patterns of development arising from the creative power of such interaction. This topological configuration, the network, can now be materially implemented, in all kinds of processes and organizations, by newly available information technologies. Without them, the networking logic would be too cumbersome to implement. Yet this networking logic is needed to structure the unstructured while preserving flexibility, since the unstructured is the driving force of innovation in human activity. Moreover, when networks diffuse, their growth becomes exponential, as the benefits of being in the network grow exponentially, because of the greater n umber of connections, and the cost grows in a linear pattern. Besides, the penalty for being outside the network increases with the network's growth because of the declining number of opportunities in reaching other elements outside the network. Fourthly, related to networking but a clearly distinct feature, the information technology paradigm is based on flexibility. Not only processes are reversible, but organizations and institutions can be modified, and even fundamentally altered, by rearranging their components. What is distinctive to the configuration of the new technological paradigm is its ability to reconfigure, a decisive feature in a society characterized by constant change and organizational fluidity. Turning the rules upside down without destroying the organization has become a possibility because the material basis of the organization can be reprogrammed and retooled. (Tuomi 1999). However, Castells concludes that we must stop short of a value judgment attached to this technological feature. This is because flexibility could be a liberating force, but also a repressive tendency if the rewriters of rules are always the powers that be. (Castells, 1996, pp 70-71) As Mulgan wrote: " Networks are created not just to communicate, but also to gain position, to outcommunicate". (Mulgan, 1991, p 21) Based on this grounds, the new data

protection regulation is trying to set up the »new rules« which will bring citizens more control over their data processing in »network society« but to the public and private sector this means more compliance and also bigger costs because they need new security politics and new controls as well as new employees. The above-mentioned Castells Communication Power in the Network Society is presented in Figure 1.

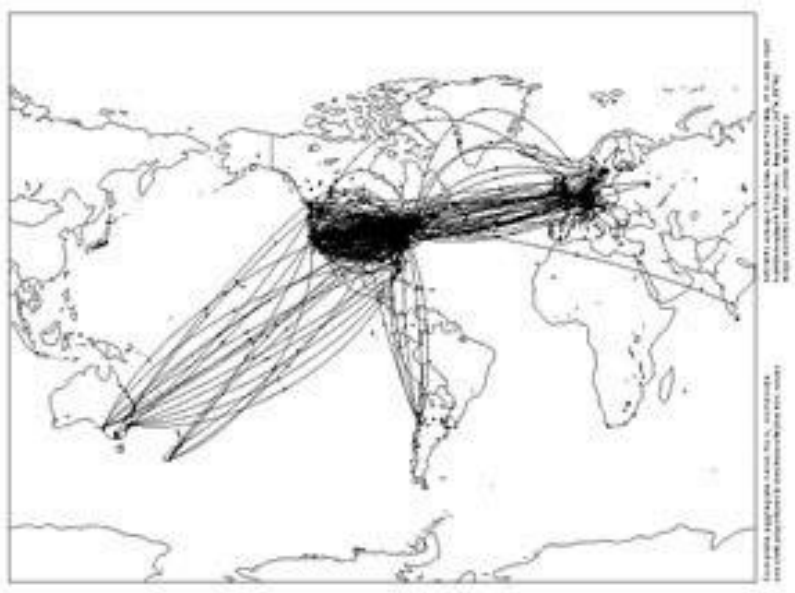

Figure 1. Castell's model of Communication Power in the Network Society, retrived 20. 11. 2017., available at http://www.craigbellamy.net/2009/03/31/communication-power-in-the-network-society/)

According to Castells, the definition of power, shown on the model of Communication Power in the network society as shown on Figure 1, is based on the control of communication and information, be it the macro-power of the state and media corporations or the micro-power of organizations of all sorts". (Castells, 2009, p 1475) Since the new information economy is defined by information and knowledge as the critical components of economic growth in networked society emerging technologies and management in the virtual cycle of higher productivity. (Machlup, 1984) So, in the network society, the space of flows dissolves time by disordering the sequence of events and making them simultaneous in the communication networks, thus installing society in structural ephemerality: being cancels becoming. (Castells, 2009, p 1510) The ongoing transformation of communication technology in the digital age extends the reach of communication media to all domains of social life in a network that is at the same time global and local, generic and customised in an ever-changing pattern. (Castells, 2007, pp. 238-266) From this point of view, with the advances in information and communication technologies in network society, personal data can travel across the globe with great ease. These new technologies offer huge benefits, but they also imply new risks for the misuse of personal data and have created a whole set of new challenges. On this track, European Parliament has revised and brought the new framework for general data protection regulation which will be applied to all organizations who's business processes take place in Europe trying to establish higher protection level of protection of personal data as crucial human rights. (Charter of fundamental rights of the European Union (2010/C 83/02)

3. NEW CHALLENGES OF GENERAL DATA PROTECTION REGULATION AND PROVISIONS OF IT'S IMPLEMENTATION IN PUBLICA AND PRIVATE SECTOR

In the new digital trends surroundings, European Union seeks to respond to the challenges of progressive growth of information and communication technologies at the expense of citizens privacy. Connected to the digital agenda, legal framework of protection of personal data and privacy of individuals presents the constitutional category of Republic of Croatia. (Constitution of the Republic of Croatia, "Official Gazette" no. 56/90, 135/97, 8/98-revised text, 113/2000, 124/2000 - consolidated text, 28/2001, 41/2001-consolidated text, 85 / 2010-consolidated text - hereinafter Constitution, Art. 37). The Constitution of the Republic of Croatia Art. 37 explicitly states that „Everyone shall be guaranteed the security and confidentiality of personal data. Without consent, personal data may be collected, processed and used only under conditions specified by law. The law is governing the protection of data and supervision of the information systems in the country. The use of personal data contrary to the purpose of their collection is prohibited. "(Constitution, Art. 37) Based on the Constitution, the legal framework of privacy and protection of personal data of consumers in Republic of Croatia is regulated also by the following legislative: Law on Protection of Personal Data, Official Gazette of Republic of Croatia 103/03, 118/06, 41/08, 130/11, 106/12-revised text); Law on Right to Access Information, (Official Gazette no. 172/03,85/15); Law on Information Security,(Official Gazette of Republic of Croatia 79/07) and Law on Personal Identification Number, (Official Gazette of Republic of Croatia, No. 60/08.) (Boban, 2014, p 1689) Also, it is clearly stated at the Article 11 of CPL that disposal of personal information of consumers which prohibits the seller from giving customer personal information to any third party without the prior consent of the consumer, in accordance with the law governing the protection of personal data (CPL, Art. 11). In order to achieve durable results in European union, it was important to determine the main policies based on EU legislation. After more than 7 years of initial initiative and four years of negotiations, the new European Personal Data Protection Framework was finally adopted in April 2016. The general EU Regulation on Personal Data Protection 2016/679, better known as the GDPR - General Data Protection Regulation, introduces major changes in personal data management methods and applies directly to all organizations that have personal data of EU citizens. Replaces the current EU directive and comes into force on the date of adoption and is directly applicable in all EU Member States. Surveillance will likely be in charge of the Personal Data Protection Agency (AZOP) with the possibility of changing the name since the possibility of adjusting certain parts is still left in national legislation as of May 25, 2018, when GDPR starts to apply!

3.1. New definition of personal data of GDPR

GDPR brings significant changes to the rules that define personal information and how they can "handle" them (since 1995 on European level). The first Personal Data Protection Act in Croatia was adopted in 2003 (last amendments were in 2012) and this Regulation is the first departure from the legal definition at EU level in 1995. By definition, "personal data means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, (Art 3. GDPR) and the new Regulation adds, and it is exemplary to include it; " location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person; (Art. 3, GDPR) which defines (and governs!) biometric data as personal data for the first time! As before, the key part of personal data processing is the "privation" of the person to use her personal information as a clear act of authorization. Novelty is the fact that, in the event of a security breach, the company is obliged to notify the

competent authorities, but also the individual whose personal information was hurt, as has been the case before.

3.2. Territorial scope of GDPR

The framework of the new EU data protection framework threw General Data Protection Reform. The main foundation of GDPR is that the regulation applies if the data controller or processor (organization) or the data subject (person) is based in the EU. Furthermore (and unlike the former Directive) the Regulation also applies to organizations based outside the European Union if they process personal data of EU residents which wasn't the case before. (Art. 3. p.2, GDPR) The Regulation does not apply to the processing of personal data for national security activities or law enforcement ("competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, including the safeguarding against and the prevention of threats to public security"). This regulation is clearly stated in Art 1 p.1 of Directive (EU) 2016/680 of the European parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA, which has followed GDPR.

3.3. Right to erasure (‘right to be forgotten’)

The most significant step forward is the “Right to erasure (‘right to be forgotten’)”. (Art 17,GDPR) The principle of this right is to allow individuals to request the deletion or removal of personal data if there is no convincing reason for their processing. GDPR states that “the data subject shall have the right to obtain from the controller the erasure of personal data concerning him or her without undue delay and the controller shall have the obligation to erase personal data without undue delay where one of the following grounds applies: (a) the personal data are no longer necessary in relation to the purposes for which they were collected or otherwise processed; (b) the data subject withdraws consent on which the processing is based according to point (a) of Article 6(1), or point (a) of Article 9(2), and where there is no other legal ground for the processing; (c) the data subject objects to the processing pursuant to Article 21(1) and there are no overriding legitimate grounds for the processing, or the data subject objects to the processing pursuant to Article 21(2); (d) the personal data have been unlawfully processed; (e) the personal data have to be erased for compliance with a legal obligation in Union or Member State law to which the controller is subject; (f) the personal data have been collected in relation to the offer of information society services referred to in Article 8(1). (Art. 17 p.1, GDPR) Applies if personal data is no longer required for the purpose for which it was collected / used when the respondent withdraws consent when the respondent objects to processing and there is no legitimate reason for continuing processing if the data is processed unlawfully if the personal data must be deleted as would comply with the statutory obligation and if it is personal information relating to children regarding the provision of information society services. (Art. 17 p.2, GDPR) Also, a person may request deletion of personal data if the data is incomplete, incorrect or up to date. Furthermore, the legislator has set the conditions under which a request for deletion may be refused, when data are processed in order to exercise the right to freedom of expression and information, in order to comply with the legal obligation to perform tasks of public interest or official authority for purposes public health - in the public interest, for archiving for the purpose of public interest, scientific / historical research or for statistical purposes, and for the purpose of establishing, achieving or defending legal requirements.

3.4. Conditions applicable to child's consent in relation to information society services

A special category presents are exactly the personal data of children where the age limit of 16 years is predetermined with the possibility of predicting a lower age limit for giving personal data to children up to 13 years of age. Member States may provide by law for a lower age for those purposes provided that such lower age is not below 13 years. (Art. 8 p.1, GDPR). There are additional conditions to be met when the request for deletion relates to the personal information of children, especially in online environments. Particularly important is the "consent" element - a person has given the child a data processing privilege, but after a few years she requested deletion. A person has a justified reason for deleting the data because as a child, during the time he was given, he could not be fully aware of the risks involved in the processing. This particularly applies to social networks and Internet forums.

3.5. Data Protection Officer (DPO)

With GDPR becoming effective, many companies have a duty to appoint a qualified Personal Data Protection Officer or Data Protection Office (DPO) who will be directly responsible to the Administration. In addition, basic understanding of the process and classification of data is understood. (Art. 37, GDPR) As GDPR states, the controller and the processor of personal data "shall designate a data protection officer in any case where: (a) the processing is carried out by a public authority or body, except for courts acting in their judicial capacity; (b) the core activities of the controller or the processor consist of processing operations which, by virtue of their nature, their scope and/or their purposes, require regular and systematic monitoring of data subjects on a large scale; or (c) the core activities of the controller or the processor consist of processing on a large scale of special categories of data pursuant to Article 9 and personal data relating to criminal convictions and offences referred to in Article 10." (Art. 37 p. 1, GDPR). The data protection officer shall have at least the following tasks: (a) to inform and advise the controller or the processor and the employees who carry out processing of their obligations pursuant to this Regulation and to other Union or Member State data protection provisions; (b) to monitor compliance with this Regulation, with other Union or Member State data protection provisions and with the policies of the controller or processor in relation to the protection of personal data, including the assignment of responsibilities, awareness-raising and training of staff involved in processing operations, and the related audits; (c) to provide advice where requested as regards the data protection impact assessment and monitor its performance pursuant to Article 35; (d) to cooperate with the supervisory authority; (e) to act as the contact point for the supervisory authority on issues relating to processing, including the prior consultation referred to in Article 36, and to consult, where appropriate, with regard to any other matter. (Art. 39 p.1, GDPR)

3.6. Pseudonymisation

In addition, GDPR enhances the right to delete clarification - organizations in the online environment that publicly disclose personal information should notify other organizations that process personal data for deleting connections, copying, or replicating the personal data involved. Apart from the deletion, GDPR gives definition of 'pseudonymisation' which means "the processing of personal data in such a manner that the personal data can no longer be attributed to a specific data subject without the use of additional information, provided that such additional information is kept separately and is subject to technical and organisational measures to ensure that the personal data are not attributed to an identified or identifiable natural person" (Art. 4 p.5, GDPR) This process has so far not been a legal requirement and represents an investment in data security which is now obligatory and also presents a significant cost to large number of organizations and may be particularly challenging if you process personal information online, for example on social networks, forums, or web pages, you must comply

with these requirements by the Regulation or otherwise expect huge punishments. According to Art. 32 Security of processing of personal data, taking into account the state of the art, the costs of implementation and the nature, scope, context and purposes of processing as well as the risk of varying likelihood and severity for the rights and freedoms of natural persons, the controller and the processor shall implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk, including inter alia as appropriate, on the first place should ensure pseudonymisation and encryption of personal data; as well as the ability to ensure the ongoing confidentiality, integrity, availability and resilience of processing systems and services; the ability to restore the availability and access to personal data in a timely manner in the event of a physical or technical incident; and a process for regularly testing, assessing and evaluating the effectiveness of technical and organisational measures for ensuring the security of the processing. (Art. 32 p. 1, GDPR)

3.7. Organization's compliance to GDPR

Firstly, to ensure the organization's compliance, any company needs experts who understand GDPR requirements and are well trained in planning, implementing, and maintaining compliance. The organization should firstly plan the implementation of GDPR following the list of procedure:

1) Establish implementation step list which is specific for every organization
2) Set realistic timelines and assign sufficient resources to the compliance process
3) Of course, the process should keep senior management apprised of progress
4) Assess relative priority of compliance recommendations, and make strategic decisions for organization in whole.

After the process of compliance has taken the course the organization should continue with ongoing review and improvements to the data protection program (followed by given procedures of GDPR) in order to avoid the penalties. The example of recommend process of compliance to GDPR is shown on Figure 2.

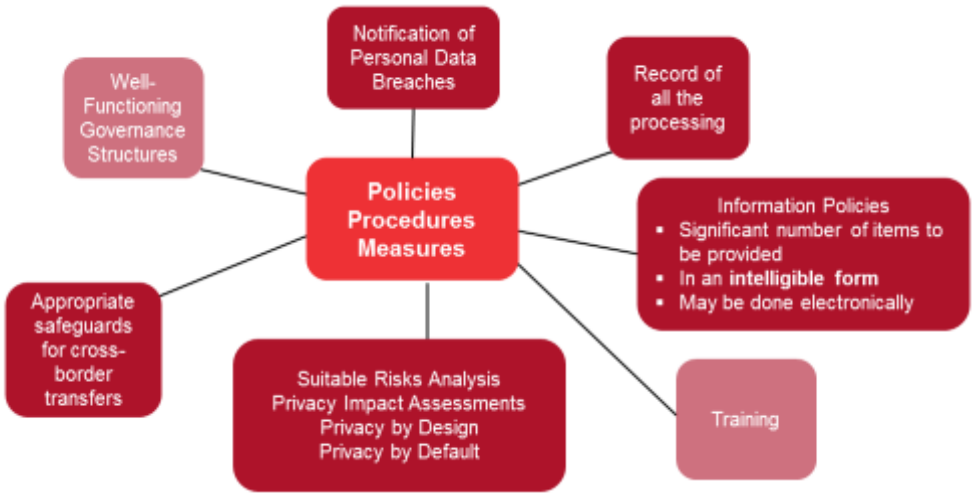

Figure 2. "Actual demonstrated compliance to GDPR in public and private sector". A graphic presentation retrieved 21.11. 2017. from Determann, L., Kaufmann, J. (2017), "Unpacking the European Commission General Data Protection Regulation- Getting into the Nitty Gritty of How to Comply", Baker McKenzie. Available at https://m.acc.com/chapters/wash/.../BM-Unpacking-the-GDPR-FINAL-June-2017.ppt (21. 11.2017)

3.8. Penalties

Starting with the elaborated rules of processing, the most important emphasis is on criminal provisions. Failure to comply with the provisions of the Regulation entails penalties and draconian - up to 4% of the total annual turnover worldwide or up to 20m euros, whichever is higher. (Art. 83 p.5, GDPR) Unlike before, it will apply to all businesses operating in the European Union (and not just those registered in the EU!) The tasks of GDPR are clearly stated in Regulation text. (Art. 57, GDPR) According to media headlines, almost 92% of US companies say that adjusting GDPR is one of the highest priorities, or 54%, consider them the highest priority. Although it is a European regulation, GDPR affects the redesign of the data protection of many foreign companies, including Facebook, Google, Microsoft and many others. Until a few months ago, it was widely believed that the punishment would not be rigorous as the Decree prescribes, that the regulator will be mild and will first alert the offenders, which may perhaps be the case for those whose offenses may be misleading. However, the European Commission has recently made it clear that a serious violation of the Regulation will not be a favor. The EUR 110 million Facebook award was made earlier this year was prescribed directly by the European Commission. The European Commission has fined Facebook €110 million for providing incorrect or misleading information during the Commission's 2014 investigation under the EU Merger Regulation of Facebook's acquisition of WhatsApp. The EU Merger Regulation obliges companies in a merger investigation to provide correct information that is not misleading as this is essential for the Commission to review mergers and takeovers in a timely and effective manner. This obligation applies, regardless of whether the information has an impact on the ultimate outcome of the merger assessment. When Facebook notified the acquisition of WhatsApp in 2014, it informed the Commission that it would be unable to establish reliable automated matching between Facebook users' accounts and WhatsApp users' accounts. It stated this both in the notification form and in a reply to a request of information from the Commission. However, in August 2016, WhatsApp announced updates to its terms of service and privacy policy, including the possibility of linking WhatsApp users' phone numbers with Facebook users' identities. On 20 December 2016, the Commission addressed a Statement of Objections to Facebook detailing its concerns. The Commission has found that, contrary to Facebook's statements in the 2014 merger review process, the technical possibility of automatically matching Facebook and WhatsApp users' identities already existed in 2014, and that Facebook staff were aware of such a possibility. (European Commission - Press release, 18 May 2017) Just a few days later after the first verdict, Italy punished WhatsApp for the same offense and thus directly filled out a 3m-euro state budget. Although based on completely different regulations, this punishment is prescribed precisely because of violating citizens' privacy and providing false information about how to connect with WhatsApp. On this occasion, Facebook said that personal account data couldn’t be merged, and two years later they did just that. They’ve put together WhatsApp accounts with Facebook accounts. The European Commission reacted promptly and imposed a EUR 110m fine; as given above in press release, which meant 0.5% of total Facebook revenue globally and 50% maximum possible by the company's merger regulation. This is just a preview of new GDPR which states fines up to 4% of the total annual turnover worldwide or up to 20m euros, whichever is higher. (Art. 83 p.5, GDPR) So if an EU country does not itself punish offenders, and the fact is that Croatia has not yet established a body that would be responsible for verifying violations and charging punishment, it is obvious that the EU will do so directly.

4. CONCLUSION

The adoption of the GDPR itself constitutes the key legal framework in which the European Union has decided to protect the privacy of its citizens. Counterfeiters will come to deserved punishments that will really be worth the budgets of the EU members themselves. If some

countries choose "softer politics" approach, the European Commission will certainly not! Therefore, the choice for companies that want to continue doing business in Europe is very simple. They will comply their business with the requirements of GDPR, or they will need to pay a high penalty, and after the lessons learned, initiate compliance alignment with the GDPR requirements that will begin to apply on 25 May 2018 in the area of the European Union.

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DEFENCE AND MILITARY ASPECTS REGARDING THE PARTNERSHIP BETWEEN NATO AND THE EU

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ABSTRACT

The North-Atlantic Alliance (NATO) and the European Union (EU) are two very different organizations. NATO is a political-military structure, with collective defence of its members at its core, while the EU has a more social and economic focus. But the two organisations have in common no less than 22 member countries. Starting from this premise, in the paper we argue that a partnership between the Alliance and the Union is not just inevitable, but can also bring valuable benefits to the overall state of security of the Euro-Atlantic area. Based on their common approaches of the crisis management process, the NATO-EU partnership was officially initiated in 2003, with the signing of the Berlin plus Agreement. Since then, the partnership has been constantly extended and renewed, currently tackling a series of various and complex challenges, such as migration and cyber threats.

Keywords: *defence, EU, NATO, partnership*

1. INTRODUCTION

Currently, 22 countries are members of both NATO and the EU (NATO, 2017; EU, 2017 a). For different reasons (geographical location, internal politics and economic conditions), some countries are only part of NATO and not EU (Albania, Canada, Iceland, Montenegro, Norway, Turkey, United States), while other countries are part of EU and not NATO (Austria, Cyprus, Finland, Ireland, Malta, Sweden). Even so, the states that are not part of EU participate in all NATO-EU meetings; similarly, the states that are not part of NATO (excepting Cyprus) are, instead, members in the Partnership for Peace – a programme implemented by the Alliance in Europe and Central Asia. We can thus agree that the cooperation between NATO and the EU is more than a welcomed one; it is actually a very natural association. Therefore, in the following we present a series of aspects regarding defence and military implications that derive from this partnership between NATO and the EU.

2. METHODOLOGY

In writing the paper we used, as research methods, the analysis of social documents, as it has been described in a scientific article written by Glenn Bowen (2009), as well as the case study method, as it has been described in a book written by Robert Yin (2014).

3. CRISIS MANAGEMENT – THE CORNERSTONE OF THE NATO-EU PARTNERSHIP

According to the Alliance's latest Strategic Concept (2010), NATO can conduct two types of military operations: collective defence operations (Article 5 operations) and crisis management operations (the so-called non-Article 5 operations), such as the ones conducted in Bosnia-Herzegovina, Kosovo or Afghanistan. On the other side, the EU also conducts its own two types of operations: either under the mutual defence clause (which was introduced by the Treaty of Lisbon and is similar to NATO's collective defence), or within the range of the Petersberg tasks – Petersberg being the name of the hotel in Bonn (Germany) where the European leaders, during a summit, agreed upon these tasks. They allow for military forces of the EU member states to be deployed for (Western European Union, 1992):

a) Humanitarian and rescue tasks;
b) Peacekeeping; and
c) Crisis management.

Until now, the Union completed 5 military operations, and currently conducts 4 other such operations in Bosnia-Herzegovina, Mali and the Horn of Africa. So, this is basically the level of ambition of each organization in terms of military operations. Ye the collaboration between the two partners in matters of defence basically revolves around crisis management operations. And the foundation, the basis of the partnership between NATO and the EU lies on the Berlin plus Agreement that was established in 2003 between the two organisations. This agreement actually includes an entire package of arrangements in various domains, such as the security of classified information exchanges or different terms of reference (European Union External Action, 2016). But the core of the Berlin plus Agreement regards guaranteed access to NATO's capabilities for crisis management operations conducted by the EU. So basically, the Union can use NATO assets and capabilities in conducting its own operation, under the condition of NATO first opting not to get involved in that operation. As a result, in 2003 the European Union took over the responsibilities of an Alliance mission conducted in the Former Yugoslav Republic of Macedonia. The name of the military operation was Concordia and it was commanded by the second highest ranking officer in NATO; moreover, as proof of the working partnership, an EU operation headquarters was established in NATO's supreme headquarters in Mons (Belgium). The operation ended in the same year, in December, and brought a substantial contribution to transforming the Former Yugoslav Republic of Macedonia in a peaceful and prosperous country (EU, 2017 b). This was the first EU military operation, as well as the first operation in which NATO assets and capabilities had been made available to the EU.

4. EXTENDING AND RENEWING THE PARTNERSHIP

In the recent past, the Alliance and the Union have extended their partnership in areas such as the migration crisis or combating piracy. For example, in June 2015 the EU launched a naval operation in the Mediterranean Sea, called Operation Sophia, with the purpose of identifying, capturing and disposing of vessels used by migrant smugglers or traffickers. In other words, Sophia is a search and rescue operation meant to counter illegal migration from North Africa to Italy, and thus to reduce the number of deaths at sea. It accomplishes this by conducting various tasks, such as: gathering intelligence, patrolling, neutralizing illegal vessels and saving migrants' lives. Yet although Operation Sophia was launched in June 2015, the flow of migrants was still very intense, so NATO decided to intervene in support of the European Union, by providing different capabilities, including: Logistics, Surveillance and Reconnaissance or Intelligence. Since then, the results have been astonishing, the European military managing to save, in just over 2 years, more than 40.000 lives at sea (Figure 1).

Figure following on the next page

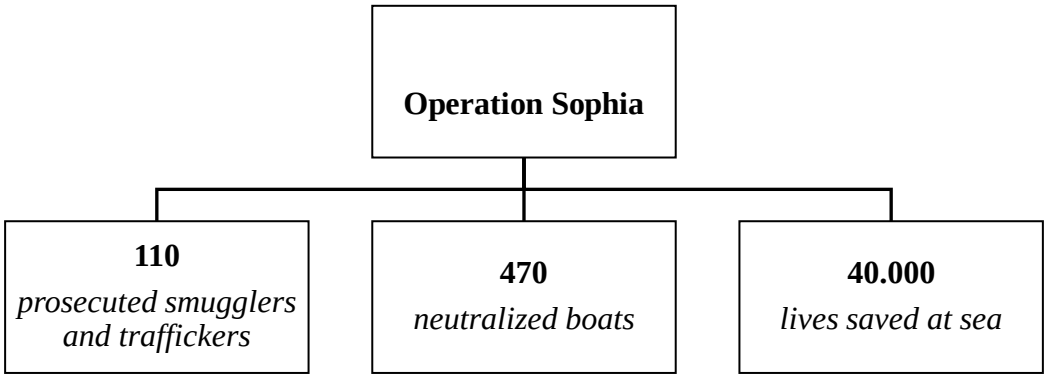

Figure 1: Achievements of Operation Sophia in Numbers (European Council, 2017)

Another recent example of the practical cooperation between the two organizations is the *countering of piracy in the Horn of Africa*, where NATO conducted Operation Ocean Shield (2009 – 2015), while the European Union is still conducting Operation Atalanta (2008 – present). At the peak of the piracy crisis, pirates were capturing dozens of ships every year; the crews were held hostage for extended periods of time, while the economic impact of these actions was very high, with costs estimated at billions of Euros each year (NATO, 2016 a). The combined efforts of the two organizations have managed to prevent and disrupt the pirate attacks, many of the perpetrators being detained and prosecuted by their national authorities. Actually, the number of pirate attacks has been practically reduced to zero, with no ships captured off Somalia since May 2012. A fresh impetus of the NATO-EU partnership has been given at the Warsaw Summit (that took place in July 2016), when the leadership of the two organizations (the Secretary General of NATO, the President of the European Council and the President of the European Commission) have signed a *Joint Declaration*, concentrating on obtaining results in 7 priority areas (*Figure 2*).

Figure 2: The Seven Priority Areas of the NATO-EU Joint Declaration

The Declaration states that the NATO-EU partnership benefits both organisations and their member countries; also, the partnership is fully opened and compliant with the „decision-making autonomy and procedures" of the two entities and brings no prejudice to the „specific character of the security and defence policy" of the members states (NATO, 2016 b). Later on, in December 2016, NATO Foreign Affairs Ministers have adopted a Statement concerning the implementation of the Joint Declaration from the Warsaw Summit, which also contains a set of 42 very specific measures to be implemented in the 7 mentioned priority areas (NATO, 2016 c). Thus, let us consider, for example, the first priority area, which is Countering Hybrid Threats. We should bear in mind the fact that hybrid threats are not threats of novelty; actually, they have been called by an analyst as the new, but familiar threats (Davis, 2015), because they have always been used by a weaker opponent against a stronger one. What indeed is changed, nowadays, is the use of diversified and refined ways of conducting a hybrid war (Cîrdei, 2016); today, hybrid war is also perpetrated by stronger states against weaker ones, aiming to assert political will not in an open way and by using regular armed forces, but by weakening the targeted society in its entirety and by hitting the key points that allow the normal functioning of that society. Among the most employed tactics within hybrid warfare we could mention:
a) Attacks, either physical or cyber, against critical infrastructures;
b) Urging of civil unrest;
c) Expansion of terrorist activities, kidnappings, hostage-takings; and
d) Limiting access to strategic resources, such as energy resources.

Therefore, how do NATO and the EU plan to address hybrid threats? Well, in 2017 they managed to set together a European Centre for Countering Hybrid Threats, in Helsinki (Finland), in order to better research and document the ways and means of the hybrid warfare. NATO and the EU are also working on improving their situational awareness, by establishing different means to exchange intelligence on hybrid threats. But most importantly, they are taking concrete measures regarding the resilience of the allies and the member states, by training and providing, upon request, teams of experts to boost this resilience both before a crisis phase, and in response to such a crisis (NATO and EU, 2017). Let us also refer to one other very practical and visible priority area from the seven ones agreed upon in the Joint Declaration, namely Military Exercises. It has been established that all these exercises should include, from then on, a hybrid element in their scenarios; also, the leading organization of an exercise (either NATO or EU) will invite staff experts from the non-leading organization to contribute to the planning and conduct of these exercises. For example, in July 2017, Romania (along with Hungary and Bulgaria) hosted the military exercise called „Saber Guardian"; it involved more than 25.000 troops from over 20 countries (Docksai, 2017), working together to improve readiness and interoperability, by executing the full range of military missions in order to maintain the stability and security in the Black Sea Region. During the exercise, troops from both NATO and the EU trained in a realistic manner, based on combat scenarios that involved the air, the land and the sea and which addressed the current security threats and geopolitical evolutions on the international stage. In other words, it was deterrence in action.

5. CONCLUSION

It should be no surprise that the North-Atlantic Alliance and the European Union are two distinctive organizations, with different purposes and concernments. On the one side, NATO is a political and military alliance that was established as a counterpart for the (then) Soviet Union; after the fall of the Berlin Wall, NATO has been accused by some of losing its purpose and focus, but things took a different turn with the launch of the concept „out of area or out of business" and lately, with the growing ambitions of Russia. On the other side, the EU has always had a more social and economic focus. First established as a way of preventing any

other hostile acts between Germany and France, the Union evolved into a comprehensive organisation tackling issues varying from the four freedoms and the internal single market to migration and crisis management. Even so, both NATO and EU have no less than 22 members in common and they mainly share the same values, the same security area and the same security threats. The different tools that the two organizations dispose of can complement each other very well; in facing the ever-changing security threats and vulnerabilities, it is only together that they can make the most efficient use of their resources. For that matter, the Berlin plus Agreement remains a classic example of the successful partnership between NATO and EU. Since its signing in 2003, the partnership has evolved in a continuous manner, encompassing nowadays complex challenges such as the hybrid threats or cyber security. In the end, it should be axiomatic that a stronger NATO and a stronger EU are in the best interest of not only the allies and the member states, but of all the well-intentioned parties acting on the international stage.

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STYLIZED FACTS ON SMART SPECIALISATION RESEARCH

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ABSTRACT
Smart Specialisation has generated a paradigmatic change in regional innovation policies and the European Union has shown a strong interest in supporting research that investigates the developments of this new science-related topic. This paper helps to generate the intellectual capital necessary to support the European Union's project of Smart Specialisation. It explores the dynamic nature of scientific knowledge production dealing with Smart Specialisation by reporting on a bibliometric analysis of the first decade of literature relating to this emerging research field. This analysis captures a number of stylized facts on Smart Specialisation research and renders them in statistical properties which are instrumental in answering the following questions: (1) What is the total and annual production of scientific publications on Smart Specialisation and what are their characteristics in terms of type and influence; (2) How large is the community of researchers and organisations working in this field? (3) What is their influence and productivity? (4) What are the key knowledge producers? (5) What is the core literature published by the research community?
Keywords: *Smart Specialisation, Bibliometrics, Stylized Facts, Core Literature, Key Knowledge Producers*

1. INTRODUCTION

In order to accelerate the transition to a knowledge-based economy and society, in 2005, the European Commission set up the Knowledge for Growth (K4G) Expert Group: a group of European economists whose remit was to operate as an independent advisory body and provide recommendations on how to move Europe towards a competitive knowledge-based economy (European Commission - Directorate-General for Research 2008; Knowledge for Growth Expert Group 2007; 2009). The recommendations proposed by the Expert Group were published between 2005 and 2009 as a series of reports and policy briefs which advise on those policy challenges that the European Union needs to address to enable a competitive knowledge economy. These relate to: the deficit in R&D and innovation; the governance of science and technology systems; the globalisation of R&D; the interrelation between technology production and diffusion; and the relationship between higher education institutions and industry. In addition, these advisory documents also introduce the concept of Smart Specialisation, which emerges as a leading theory of the K4G Expert Group and is presented in the policy briefs from Foray and Van Ark (2007) and Foray et al. (2009).

The K4G Expert Group suggests Europe is losing its position as one of the main centre for research and innovation. Creating European-based global R&D hubs that are able to compete with foreign hubs and attract more research capacities and knowledge resources is the solution proposed by the Expert Group (European Commission - Directorate-General for Research 2008). However, this requires regions across Europe to engage in the so-called Smart Specialisation process, which implies the identification and development of the most promising research and innovation domains. These research and innovation domains are considered as being "areas of specialisation" that can best support the growth of the regional economy (Foray et al. 2009). The concept of Smart Specialisation has generated a paradigmatic change in regional innovation policies and the European Union has shown a strong interest in supporting research that investigates the development of this new science-related topic. This paper helps to generate the intellectual capital necessary to support the European Union's project of Smart Specialisation. It explores the dynamic nature of scientific knowledge production dealing with Smart Specialisation by reporting on a bibliometric analysis of the first decade of literature belonging to this emerging field of research. In presenting the results as a set of stylized facts, this analysis captures the statistical properties which are instrumental in answering the following questions:

- What is the total and annual production of scientific publications on Smart Specialisation and what are their characteristics in terms of type and influence;
- How large is the community of researchers and organisations working in this research area?
- What is their influence and productivity?
- Who are the key knowledge producers?
- What is the core literature published by the research community?

This bibliometric analysis combines the count of publications, authors, organisations and citations and is undertaken by considering the scientific literature dealing with Smart Specialisation published between 2005 and 2016[1]. The raw data necessary to perform the analysis was extracted from this group of publications, which are the source documents of this bibliometric study (Small and Crane 1979; Shiau and Dwivedi 2013). Overall, the findings of this study provide researchers working in the field of Smart Specialisation with a comprehensive picture of their research area and a more extensive understanding of how its intellectual structure is currently being shaped.

2. METHODOLOGY

The following metrics are deployed in order to address the research questions.

2.1. Metric 1: Author and organization count

Authors' full names were extracted in each source document, together with their affiliations, which are grouped in four categories: (1) University; (2) Business; (3) Government; (4) Other. This activity makes it possible to build the community of researchers and organisations working in the field of Smart Specialisation, analyse its overall structure, and compare the distribution of authors and organisations across different geographic regions.

2.2. Metric 2: Publication count

This productivity metric is used to measure and compare the scientific output at any level of aggregation (author, organisation and country). During the count, publications that are

[1] The literature search was conducted in February 2017 by using Web of Science and Scopus and produced. This search produced 274 results, which can be grouped in five main categories: Books (4); Book chapters (8); Conference papers (58); Articles published in scholarly journals (128); Other (7).

produced by multiple entities are split and each entity is assigned an equal share. This means that a publication is only counted once, even when it is co-authored by several authors, organisations and countries.

2.3. Metric 3: Citation count

This impact metric is used to compare the influence of authors, organisations and countries working in the field of Smart Specialisation. The influence of each entity is measured by counting the number of citations that its source documents have received from other source documents[2]. As in the case of the publication count, where the source document is authored by two or more entities, the total number of citations it has received is divided equally and each entity is assigned an equal share. The citation count is also used to identify the core documents, i.e. those publications which have obtained the highest number of citations from other publications in the group. Core documents represent the main cognitive nodes of the research field they represent (Glanzel and Thijs 2011; Meyer et al. 2014).

3. RESULTS OF THE BIBLIOMETRIC ANALYSIS

3.1. Knowledge production

The data related to both the annual count and the cumulative growth of source documents shows research on Smart Specialisation begins in 2011 (see Table 1), with three publications discussing this new science-related topic. The first one is a conference paper describing the user-driven and open innovation model promoted by TestLab, a living lab created by the Italian Province of Trento, in collaboration with the European Network of Living Labs. Drawing on this experience, the paper suggests the living lab methodology generates "a mechanism of bottom-up Smart Specialisation, whereby regional priorities can be determined by the willingness of local actors to join forces and strive for common goals" (Ferrari et al. 2011: 332). The second publication is a journal article from Di Anselmo and Lo Cascio (2011), which discusses the challenges posed by the recent economic crisis, highlighting the need for smarter forms of policymaking able to support innovation at the regional level by means of public investments. The authors go on to suggest that the Smart Specialisation process is an effective tool for meeting this aim, because it supports the establishment of new and sustainable regional development paths that provide for "a selective use of resources" and concentration of investments "in a narrower range of measures which offer better returns". This allows to move away from a deregulated provision (Di Anselmo and Lo Cascio 2011: 468). Finally, the third publication reports on a study aimed at supporting the Smart Specialisation process in Cape Town by explaining how this European concept can be exported to South Africa (Lorentzen et al. 2011).

Table following on the next page

[2] Citation data is extracted manually by analyzing the references from each source document

YEAR	PUBLICATIONS		AUTHORS	
	Annual count	Cumulative Growth	Annual count	Cumulative Growth
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	0	0	0
2010	0	0	0	0
2011	3	3	9	9
2012	3	6	9	18
2013	22	28	47	65
2014	53	81	93	158
2015	54	135	112	270
2016	70	205	125	395

Table 1: Annual count and cumulative growth of publications and authors

These publications open up a scientific debate that has grown steadily over the years, notably between 2014 and 2016, a period in which 86% of the available literature on Smart Specialisation is published. This literature is mainly produced in Europe (93.0%), where universities are the most active organisations. Universities contributed 69.9% of the publications under consideration (corresponding to approximately 144 of the 205 source documents), while businesses, governments and other institutions belonging to European countries only account for 23.1% of the publication volume. The top universities for publication output are found in Italy, which has the highest level of production (15.4%), followed by Poland (8.9%), Spain (8.5%), United Kingdom (7.4%), Netherlands (6.8%), Lithuania (5.2%), Latvia (4.9%) and Romania (4.9%). In contrast, Cyprus (0.2%), Serbia (0.4%), Ukraine (0.5%), France (0.5%), Norway (0.5%), Slovenia (0.6%), Malta (0.7%), Bulgaria (1.0%) and Portugal (1.0%) follow a different path. With a total publication output lower than or equal to two source documents, they have the lowest level of involvement amongst all the European countries conducting research in the field of Smart Specialisation (see Table 2).

COUNTRY	% AUTHORS					% ORGANISATIONS					% PUBLICATIONS					% CITATIONS				
	U	B	G	O	Tot	U	B	G	O	Tot	U	B	G	O	Tot	U	B	G	O	Tot
EUROPE	**64.8**	**7.6**	**11.6**	**6.1**	**90.1**	**59.3**	**8.8**	**12.3**	**6.9**	**87.3**	**69.9**	**5.3**	**10.9**	**6.9**	**93.0**	**82.0**	**3.5**	**6.2**	**7.2**	**98.8**
Belgium	0.5	0.8	0.8	0.0	2.0	0.5	1.0	1.0	0.0	2.5	0.5	0.7	0.9	0.0	2.1	1.3	1.7	1.5	0.0	4.5
Bulgaria	1.0	0.0	0.0	0.0	1.0	1.5	0.0	0.0	0.0	1.5	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Croatia	0.3	0.5	1.8	0.5	3.0	0.5	0.5	2.5	0.5	3.9	0.5	0.5	1.1	0.3	2.4	0.0	0.0	0.0	0.0	0.0
Cyprus	0.3	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.5	0.2	0.0	0.0	0.0	0.2	0.6	0.0	0.0	0.0	0.6
Czech Republic	1.8	0.0	0.0	0.0	1.8	1.5	0.0	0.0	0.0	1.5	1.4	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0
Denmark	1.0	0.0	0.0	0.0	1.0	1.5	0.0	0.0	0.0	1.5	1.1	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0
Estonia	2.8	0.0	0.0	0.3	3.0	1.0	0.0	0.0	0.5	1.5	2.2	0.0	0.0	0.4	2.6	0.8	0.0	0.0	0.2	1.0
Finland	4.1	0.3	0.5	0.0	4.8	3.4	0.5	1.0	0.0	4.9	2.6	0.1	0.3	0.0	3.0	0.6	0.0	0.0	0.0	0.6
France	0.5	0.0	0.0	0.0	0.5	1.0	0.0	0.0	0.0	1.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Germany	1.5	1.3	0.0	0.5	3.3	2.0	1.5	0.0	0.5	3.9	0.9	0.6	0.0	1.2	2.7	0.0	0.3	0.0	4.0	4.3
Greece	1.3	0.3	0.3	0.3	2.0	1.5	0.5	0.5	0.5	2.9	1.2	0.2	0.2	0.5	2.2	0.6	0.0	0.0	0.0	0.6
Hungary	1.3	0.0	0.3	0.0	1.5	1.5	0.0	0.5	0.0	2.0	1.1	0.0	0.2	0.0	1.3	0.0	0.0	0.0	0.0	0.0
Ireland	1.0	0.0	0.3	0.0	1.3	0.5	0.0	0.5	0.0	1.0	1.0	0.0	0.5	0.0	1.5	0.0	0.0	0.0	0.0	0.0
Italy	11.1	1.8	1.5	0.3	14.7	9.3	1.5	1.5	0.5	12.7	12.0	1.3	2.0	0.2	15.4	18.7	0.0	0.7	0.0	19.4
Latvia	3.3	0.0	0.0	0.5	3.8	2.5	0.0	0.0	0.5	2.9	4.7	0.0	0.0	0.2	4.9	0.3	0.0	0.0	0.0	0.3
Lithuania	3.0	0.8	0.3	0.5	4.6	1.0	1.0	0.5	0.5	2.9	3.3	0.7	0.7	0.5	5.2	0.3	1.3	0.6	0.0	2.2
Malta	0.3	0.0	1.0	0.0	1.3	0.5	0.0	1.0	0.0	1.5	0.2	0.0	0.5	0.0	0.7	0.0	0.0	0.8	0.0	0.8
Netherlands	2.5	0.0	0.3	0.5	3.3	2.5	0.0	0.5	1.0	3.9	6.2	0.0	0.2	0.4	6.8	33.1	0.0	0.7	0.1	33.9
Norway	0.3	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.3
Poland	5.1	0.3	1.5	0.3	7.1	3.4	0.5	1.5	0.5	5.9	7.4	0.2	1.1	0.2	8.9	1.2	0.0	0.0	0.0	1.2
Portugal	1.0	0.0	0.0	0.3	1.3	1.0	0.0	0.0	0.5	1.5	0.8	0.0	0.0	0.2	1.0	0.0	0.0	0.0	0.0	0.0
Romania	4.6	0.0	0.5	0.0	5.1	4.4	0.0	1.0	0.0	5.4	3.9	0.0	1.0	0.0	4.9	0.0	0.0	1.0	0.0	1.0
Serbia	0.8	0.0	0.0	0.0	0.8	0.5	0.0	0.0	0.0	0.5	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Slovakia	2.5	0.0	0.0	0.0	2.5	2.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Slovenia	1.3	0.0	0.0	0.0	1.3	1.0	0.0	0.0	0.0	1.0	0.6	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Spain	3.3	1.0	2.8	2.0	9.1	3.4	1.0	0.5	1.0	5.9	3.1	0.5	2.2	2.7	8.5	0.7	0.0	1.0	3.0	4.6
Sweden	1.8	0.0	0.0	0.0	1.8	1.0	0.0	0.0	0.0	1.0	1.7	0.0	0.0	0.0	1.7	8.3	0.0	0.0	0.0	8.3
Switzerland	0.5	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.5	2.0	0.0	0.0	0.0	2.0	12.2	0.0	0.0	0.0	12.2
Ukraine	0.5	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
United Kingdom	5.8	0.8	0.0	0.3	6.8	8.8	1.0	0.0	0.5	10.3	6.8	0.4	0.0	0.2	7.4	3.1	0.2	0.0	0.0	3.3
OTHER	**7.1**	**0.0**	**2.3**	**0.5**	**9.9**	**9.8**	**0.0**	**2.0**	**1.0**	**12.7**	**5.3**	**0.0**	**1.5**	**0.2**	**7.0**	**1.2**	**0.0**	**0.0**	**0.0**	**1.2**
Australia	2.5	0.0	0.3	0.0	2.8	2.5	0.0	0.5	0.0	2.9	1.1	0.0	0.2	0.0	1.3	0.0	0.0	0.0	0.0	0.0
Canada	0.5	0.0	0.3	0.5	1.3	1.0	0.0	0.5	1.0	2.5	0.2	0.0	0.2	0.2	0.7	0.0	0.0	0.0	0.0	0.0
China	0.3	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.5	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Israel	0.3	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Kazakhstan	0.0	0.0	0.8	0.0	0.8	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Mexico	0.5	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Russia	1.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	1.0	0.8	0.0	0.0	0.0	0.8	0.2	0.0	0.0	0.0	0.2
South Africa	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0
United States	2.0	0.0	0.0	0.0	2.0	3.9	0.0	0.0	0.0	3.9	2.2	0.0	0.0	0.0	2.2	0.9	0.0	0.0	0.0	0.9
TOTAL	**71.9**	**7.6**	**13.9**	**6.6**	**100.0**	**69.1**	**8.8**	**14.2**	**7.8**	**100.0**	**75.2**	**5.3**	**12.4**	**7.1**	**100.0**	**83.1**	**3.5**	**6.2**	**7.2**	**100.0**

Table 2: Publications, organisations, authors and citations by country and organization type. U: University; B: Business; G: Government; O: Other

3.2. Workforce

In the period between early 2005 and late 2016, the scientific community conducting research on Smart Specialisation is composed of 395 researchers from 204 organisations, which are located in 40 different countries. Table 1 shows the progressive growth of this community, in which the number of active researchers has increased annually, together with the number of source documents. The data in Table 2 suggests these authors work mainly for European-based organisations (90.1%), where universities have the highest share of authors (64.8%). They also show that the percentage of researchers from businesses (7.6%) and governmental institutions (11.6%) reflects the low level of production of both sectors. In addition to having the highest volume of output, Italy is also the country with the highest number of active researchers (14.7%). This positive correlation between workforce and publication output is found in the majority of the most productive countries, where the percentage of researchers working in the field of Smart Specialisation is comprised of between 3.3% and 9.1%: Spain (9.1%); Poland (7.1%); United Kingdom (6.8%); Romania (5.1%); Lithuania (4.6%); Latvia (3.8%); and Netherlands (3.3%). Germany, Finland, Croatia and Estonia are the only countries which display a reverse trend where despite the workforce being similar to the most productive countries, the production of literature is markedly lower (see Table 2).

3.3. Influence

Looking at the share of citations that each country has obtained during the period under investigation, it is evident that research on Smart Specialisation is mainly driven by European countries and their universities. Together, these 30 active countries account for about 98.8% of the 303 total citations obtained by the source documents, and their universities have received the highest share (82.0%). Only 16.9% of citations are related to the research activities conducted by governmental organisations, the business sector and civic organisations (see Table 2). Moreover, by comparing the data on both influence and publication output, the following insights emerge, which make it possible to split the European countries conducting research on Smart Specialisation into four clusters:

- 18 of the 30 European countries have a very limited or no influence in the field of Smart Specialisation and this lack results from the low level of publication output. These countries are Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Malta, Norway, Portugal, Serbia, Slovakia, Slovenia and Ukraine (Cluster 1);
- Despite the high level of publication output, Latvia, Lithuania, Poland and Romania's influence is moderate (Cluster 2);
- Belgium, Germany, Sweden and Switzerland (Cluster 3) are among the most influential countries in the field of Smart Specialisation. However, they leverage a far lower number of publications compared to Spain, Italy, Netherlands and the United Kingdom (Cluster 4), which are the top countries for both research output and influence.

The results of the analysis suggest that Belgium, Germany, Spain, Sweden, Switzerland, Italy, Netherlands and the United Kingdom can be considered as the main regional knowledge hubs in the field of Smart Specialisation. The eight knowledge hubs are mapped in Figure 1, along with the key knowledge producers, which are listed as the top 15 organisations for number of citations. It is not surprising that most of these knowledge producers are in the regional knowledge hubs, where research is mainly driven by universities: Politecnico di Milano and Università Politecnica delle Marche in Italy; University of Groningen and Utrecht University in the Netherlands; Lund University in Sweden; Ecole Polytechnique Federale de Lausanne in Switzerland; University of Antwerp in Belgium; and Cardiff University in the United Kingdom. The list of key knowledge producers also includes: the non-governmental institutions

Fraunhofer Institute for Systems and Innovation Research and Orkestra - Basque Institute of Competitiveness, located in Germany and Spain respectively; the European Commission and one of its Joint Research Centre; the Brussels' office of the consultancy Technopolis Group; the Institute of National Economy in Romania; and Visionary Analytics in Lithuania.

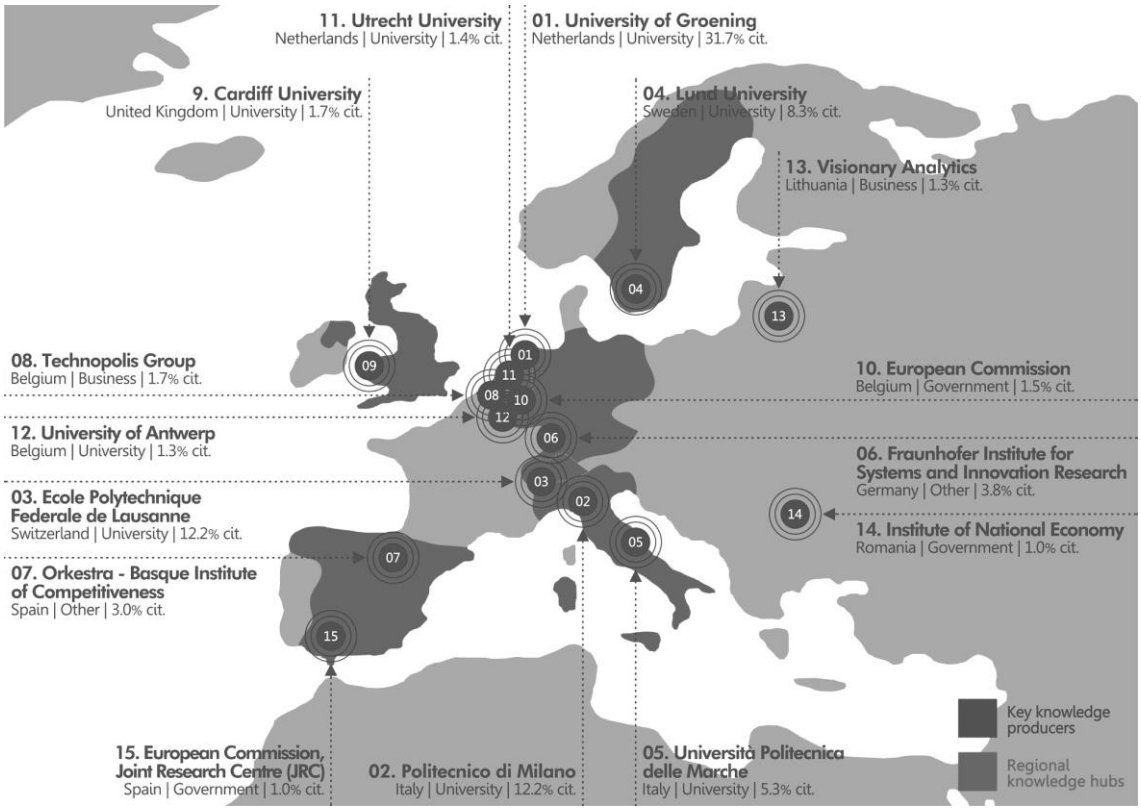

Figure 1: Regional knowledge hubs and key knowledge producers

3.4. Core documents

With 43 citations, McCann and Ortega-Argilés (2015) is the most cited publication (see Table 3). This journal article explains the origins of the Smart Specialisation concept and examines the rationale behind the policy-prioritization logic and the place-based approach to regional development it promotes. This serves to highlight "the critical role of knowledge diffusion processes between sectors, activities and occupations, and explicitly avoids automatically prioritizing high-technology sectors by taking a broader systems perspective" (McCann and Ortega-Argilés 2015: 1293). The discussion on Smart Specialisation that McCann and Ortega-Argilés offer in this publication is expanded by way of three additional articles which they subsequently co-authored. These articles explore the developments relating to regional innovation policy by reviewing the literature that international development institutions such as World Bank, OECD and European Commission have produced in recent years. These include Smart Specialisation, which is described as a policy prioritisation agenda for regional innovation policy that results from the adaptation of the debate on non-spatial innovation policy to the European Cohesion Policy (McCann and Ortega-Argilés 2013a; 2013b; 2014).

Table following on the next page

REFERENCE	YEAR	TYPE	AUTHORS AND AFFILIATIONS	N° OF CITATIONS
McCann and Ortega-Argiles 2015	2013	Journal Article	McCann, P.; Ortega-Argiles, R. [University of Groningen, Netherland]	43
Boschma 2014	2014	Journal Article	Boschma, R. [Lund University, Sweden; Utrecht University, Netherland]	24
Foray 2015	2015	Book	Foray, D. [Ecole Polytechnique Federale de Lausanne, Switzerland]	18
McCann and Ortega-Argiles 2014	2014	Journal Article	McCann, P.; Ortega-Argiles, R. [University of Groningen, Netherland]	17
Camagni and Capello 2013	2013	Journal Article	Camagni, R.; Capello, R. [Politecnico di Milano, Italy]	15
McCann and Ortega-Argiles 2013a	2013	Journal Article	McCann, P.; Ortega-Argiles, R. [University of Groningen, Netherland]	13
Iacobucci 2014	2014	Journal Article	Iacobucci, D. [Università Politecnica delle Marche, Italy]	13
Coffano and Foray 2014	2014	Journal Article	Coffano, M.; Foray, D. [Ecole Polytechnique Federale de Lausanne, Switzerland]	12
Kroll 2015	2015	Journal Article	Kroll, H. [Fraunhofer Institute for Systems and Innovation Research, Germany]	10
McCann and Ortega-Argiles 201b	2013	Journal Article	McCann, P.; Ortega-Argiles, R. [University of Groningen, Netherland]	10
Capello 2014	2014	Journal Article	Capello, R. [Politecnico di Milano, Italy]	10
Camagni et al. 2014	2014	Journal Article	Camagni, R.; Capello, R.; Lenzi, C. [Politecnico di Milano, Italy]	10

Table 3: Core literature

Along with Iacobucci (2014), Kroll (2015), Foray (2015) and Capello (2014), these publications capture what is known about the concept of Smart Specialisation. In capturing this knowledge, they also suggest the practical aspects related to the design and implementation process of strategies for Smart Specialisation remains at an early stage of development and a number of critical issues are still open. As Capello (2014: 5) points out: "no definitive view on the concept has so far been reached, and the challenges, strengths and risks associated with the best design and implementation of the Smart Specialisation strategy are still much debated". Camagni et al. (2014) and Camagni and Capello (2013) contribute to the debate with two articles that support the general philosophy behind the Smart Specialisation concept, but which also criticize its direct application in regional development policies. As with McCann and Ortega-Argilés (2015), these authors suggest the Smart Specialisation approach "looks highly valuable, appropriate and a good starting point for further reflections" (Camagni and Capello 2013: 361), however, the sectoral and non-spatial logic from which it emerges "ignores the variability of regional innovation paths, [which] strongly depend on territorial elements rooted in the local society, its history, its culture and its typical learning processes" (Camagni et al. 2014: 72). According to these authors, this calls for a new "rationale for a regionalized conception, design and delivery of innovation policies based on a territorial taxonomy", that their articles outline. This taxonomy is proposed to facilitate the development of "common approaches for similar types of regions [and] prevent [any] misallocation of public resources and unlikely local strategies" (Camagni and Capello 2013: 357). The remaining core literature: (1) focuses attention on the complementary relationship between Smart Specialisation and Constructing Regional Advantage, two policy concepts which have attracted much attention at the European level, and "provides important inputs to develop a smart and comprehensive policy design that avoids rent-seeking behaviour of vested local stakeholders but instead focuses on true economic renewal in regions" (Boschma 2014: 64); (2) combines the data obtained from two questionnaire-based online surveys and a range of qualitative interviews with policy makers to gain deeper insights into the implementation processes of strategies for Smart Specialisation in

European regions (Kroll 2015); (3) explains the centrality of the entrepreneurial discovery process that drives the bottom-up and decentralized logic of Smart Specialisation (Coffano and Foray 2014).

4. DISCUSSION AND CONCLUSION

The results of the bibliometric analysis show that research on Smart Specialisation has increased steadily since the publication of the K4G Expert Group's policy recommendations, leading to the progressive development of a new and emerging research field in which the number of authors and scientific publications have grown exponentially. The first scientific publications dealing with Smart Specialisation date back to 2011, however, most of the literature belonging to this research field is published between 2014 and 2016. This three-year period accounts for about 86% of the 205 publications produced during the first decade of research. The community of researchers working in this field has expanded following a similar growth path: the 9 authors publishing in 2011 become 65 in 2013 and 395 at the end of 2016.

The production of the policy briefs that introduces the concept of Smart Specialisation in 2005 and the distribution of the first peer-reviewed publications in 2011 can be considered as two milestones in the development process of this research field. The growth in the number of active researchers and publications characterising the period between 2014 to 2016 represents the third milestone and is anticipated by relevant developments in the European Union's legislative framework. A new Regulation is formally endorsed by the Council of the European Union in December 2013, which lays down a set of common rules for governing the European Structural and Investment Funds during the period 2014-2020 (European Commission 2014). This new legislative framework provides a definition of Smart Specialisation strategies as: "the national or regional innovation strategies which set priorities in order to build competitive advantage by developing and matching research and innovation own strengths to business needs in order to address emerging opportunities and market developments in a coherent manner, while avoiding duplication and fragmentation of efforts". It also introduces the existence of a national or regional Smart Specialisation strategy as a thematic ex ante conditionality that all the Member States have to comply with in order for the European Commission to provide them with funds for research and technological development (European Union 2013). This new legislative framework has triggered the scientific debate on Smart Specialisation, which is led by European countries. The results of this study show that 93% of the literature on Smart Specialisation is produced in Europe, where universities are the most active organisations, with an overall publication output of 70%. European countries and their higher education institutions also account for the main share of available workforce and citations. Around 90% of authors work for European organisations and their publications have obtained 99% of the total citations. With 65% of the authors and 82% of all citations, universities have the highest share of both these measures. Europe is also where the regional knowledge hubs on Smart Specialisation are found. These include Belgium, Germany, Spain, Sweden, Switzerland, Italy, Netherlands and the United Kingdom. Currently, 13 of the 15 top organisations for number of citations are based in the regional knowledge hubs, where the research is mainly driven by the following universities: University of Groningen; Ecole Polytechnique Federale de Lausanne; Politecnico di Milano; Lund University; Università Politecnica delle Marche; Cardiff University; Utrecht University; and University of Antwerp.

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THE RESEARCH OF STUDENTS ATTITUDES TOWARDS MIGRATION AFTER GRADUATION

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ABSTRACT

In the course of the last century, the eastern region of the Republic of Croatia, because of its natural resources and economic activities has been a region that was suitable place to live. Due to the growth of industry and the presence of agricultural combines, the population from other areas of the Republic of Croatia migrated to this area. Today, due to different socio - economic impacts, population from this region migrates mainly to the Western EU countries. The types of migration may be different according to different criterions. The causes of migration can be based on economic and non – economic factors. Do the young and educated people think about migration once they graduate? Do they want to migrate to the other cities in Croatia or towards other countries? Do the causes of emigration are based on economic grounds? For the purpose of this study a survey was conducted using a questionnaire on a sample (n=180) senior students chosen from the final years of the College of Applied Sciences "Lavoslav Ružička" in Vukovar (Physiotherapy Study, Study of Public Administration and Study of Commerce were included) to realise students' attitude towards migration after graduation. In this paper are presented and analyzed differences between students from different studies, motivations, plans and resasons for migration. The research has show how the plans od students are significantly different considering studies. The results of this research may be interesting for making demographic strategy, for education policies and for choices of studies on higher education institutions in Republic of Croatia.

Keywords: *Migration, Students, The causes of migration, The research*

1. INTRODUCTION

During the recent years in public and media alike there are often talk about the emigration of the Slavonia population to the countries of Western Europe, which by itself was the motive for choosing the topic of this research paper. In the paper is presented the theoretical view of the migration concept, migration classification and possible causes of migration. The research for the needs of this paper was done using a questionnaire survey that was applied on 180 students of the final year of the College of Applied Sciences ''Lavoslav Ružička'' in Vukovar, with its final goal to perform an analysis on how many students are planning to emigrate abroad after completing their education, for how many of them are planning to emigrate out of their place of residence, what are the causes of migration, are the causes of potential migration economic by nature; what is the nature of the relationship between study courses where they are currently study and their plans for emigration, and also to establish the relationship between respondents gender and the place of their present residence with emigration plans after graduation.

2. THE NOTION OF MIGRATION

"The migration of population (or the mechanical movement) denotes spatial mobility, i.e. the spatial mobility of a population" (Wertheimer - Baletić, A, 1999: 281). "Migration is one of the fundamental characteristics of man's drive to move, his existential need that mirrors the reflexes of general curiosity. It's a struggle for the better, the definite escape from insecurity, subordination, from the exploitation and from the unconditionally imposed obedience"

(Friganović, 1989: 19). "Migration or moving implies any change in the place of permanent residence whether such moving is of permanent or temporary nature, at a smaller or at a greater distance within or across national and administrative boundaries" (Nejašmić, 2005: 114). For the need of demographic analysis, migration is usually defined as a more permanent change of residence. In order to the spatial movement of the population to be considered as migration in the narrow sense of the word, the two conditions below must be fulfilled (Wertheimer - Baletić, 1999: 282):

1. That during resettlement, it's about a cross - over of a specific and for the migration previously determined and significant border of the relevant administrative - territorial unit.
2. When it's considered a permanent change of a place of permanent residence.

Migration of the population influence on (Ibid, 283): the size of the total population and its spatial distribution, birth and mortality rates and population structure (demographic, economic - social, national and other). While natural movement is initially biological phenomenon that modifies social change, economic and social factors regularly stays behind migratory movements. The specificity of migration is in relation to the birth rate and mortality and is reflected in the existence of the dual migration effect. Immigration to the destination place stands for the number of residents involved in emigration from the place of origin and vice versa. This dual effect occurs in different areas in the place of origin and the destination place (Wertheimer - Baletić, 1999). The factors that influence the individual's decision on migration are (Lee, 1966): factors associated with the place of origin of migration, factors associated with the final destination of migration, obstacles to migration between the place of origin and the final destination, various personal factors by which the above factors are modified.
Current migration reality is a proof that migration cannot merely be accepted as a simple mechanical transition, but rather as a complex dynamic process of interrelated interactions between political, socio - economic and demographic phenomena and therefore confirms that migrations reflect socio - economic development (Lajić, 2002). ''The main types of migration were derived in relation to (Wertheimer - Baletić, 1999: 300-301):

1. The criterion of state borders, such as:
   a) External migrations that can be recognised as continental and intercontinental.
   b) Internal migrations such as local migration that represents village - city, city - village, city – city and village – village migrations.

2. The duration criterion:
   a) Final migrations.
   b) Temporary migrations, for here we understood in the narrow sense of the word seasonal and daily migrations.

3. According to the criterion of migration motives that can be:
   a) Economic.
   b) Non – economic.

4. In accordance to the criterion of will:
   a) Voluntary migrations.
   b) Forced migrations.

5. In accordance to the criteria of organization:
   a) Organized and
   b) Unorganized migrations.''

Generally, the migration process takes place from the underdeveloped to developed areas, from densely populated areas to the less populated areas, from patriarchal to the modern society, from unsafe area to the secure regions, etc. (Lichtenberger, 1978). During the recent years in the Republic of Croatia we have recognised all of the migration modalities what indicate that the population of the Republic of Croatia is at a high level of migration, but we can also recognise the presence of factors that are causing them. The size of Croatian migrations, the demographic structure of the migration contingent, spatial distribution of the very origins of migrations and negative Croatian migration balance inflict a question about the unfavourable impact of migration on demographic and socio - economic development of the Republic of Croatia (Lajić, 2002). On the emigration trends towards certain Western European countries, apart from the geographical proximity and traffic connections, are also imposed the historical and political circumstances and economic relations of individual, affected countries (Radoš, 2005). Following the decades after the Second World War, the region of Slavonia was a desirable immigration area due to the rapid industrialization, urbanization and modernization of its villages. In the course of the last decade, due to the consequences of warfare in this area (forced migration), the transition of the enterprises ownership and bad economic situation, the present population today emigrates from the Slavonia region. The results of the 2016 survey on emigration from Osijek indicate the migration of the population of an average age of 28 years (Brekalo, Lukić, 2017). Today, young migrants are more interested in investing in themselves and working on themselves; they are more disposed to accumulate financial and individual capital through formal education and experience. The primary goal of a typical young migrant today is not to improve the economy status of their family at home (they are very often accompanied with their family), but to increase opportunities for themselves (Obradović, 2017).

3. RESEARCH METHODOLOGY AND HYPOTHESES

Data from the survey were collected with a use of a survey questionnaire and the survey was carried out at the College of Applied Sciences ‘’Lavoslav Ružička’’ in Vukovar, from the months of September to November 2017. The survey questionnaire as a research instrument contained 12 questions that were related to the demographic characteristics of the respondents, to the plans of students after their graduation and their tendency towards migration. Prior to the commencing of this research, students were familiarised with research and its subject. The sample is appropriate, because only the final year students of the College of the Applied Sciences "Lavoslav Ružička" in Vukovar were selected to represent the sample in order to explore their tendency towards migration after graduation. A total of 180 students of the final years were interviewed, on this way encompassing all of the three study courses: The Study of Commerce, The Study of Public Administration and The Study of Physiotherapy. The demographic variables in the survey questionnaire were: gender, domicile county, place of residence (village or a city), and a significant variable was also the study course of respondents. The statistical analysis was done using the statistical package IBM SPSS Statistics 19.0. A χ^2 - test (hi - square test) was used to test the correlations between the variables. Descriptive statistics for categorical variables are shown by percentages.
The demographic characteristics of the sample are shown in Table 1.

Table following on the next page

Table 1: Demographic characteristics of respondents (in %) (Survey questionnaires and author's data processing)

	Total sample
Variables	%
	100
Study course	
Administrative	27,2
Commerce	32,8
Physiotherapy	40
Gender	
Male	35
Female	65
County of residence	
Vukovar - Srijem	51,1
Osijek - Baranja	35,6
other	13,3
Place of residence	
Village	41,1
City	58,9

The study included 40% of subjects from the study course The Study of Physiotherapy, 32,8% of students from The Study of Commerce and 27,2% of students of The Study of Public Administration. In accordance to the county of residence; 51,1% of respondents have their residence in the Vukovar - Srijem County, 35,6% of them in Osijek - Baranja County, and 13,3% of respondents have their place of residence in other counties. Total of 58,9% of surveyed respondents reside in the city while 41,1% of them in the village.

In line with the theoretical - methodological approach and set the subject - related problem, it's possible to set several hypotheses:

H_1 - Students at the College of Applied Sciences ''Lavoslav Ružička'' in Vukovar after their studies are planning to resettle from their place of residence.

H_2 - Reasons for the students' emigrations after graduation are economic factors.

H_3 - Physiotherapy students are more likely to migrate abroad after graduation.

H_4 - Student plans differ significantly with regard to the study course.

4. RESEARCH RESULTS

4.1. The respondents' characteristics with regard to their plans after graduation

The characteristics of the respondents with regard to their plans after completing their study courses are shown in Table 2.

Table following on the next page

Table 2: Characteristics of respondents with respect to their plans after graduation (in %) (*Survey questionnaires and author's data processing)*

	Part of the population that do not plan to emigrate	A population that generally have in mind to emigrate from the place of residence	Population planning to emigrate abroad
Variables	N (%)	N (%)	N (%)
	50	50	25,6
Study course			
Administrative	33,3	21,1	10,9
Commercial	36,7	28,9	32,6
Physiotherapy	30	50	565
Gender			
Male	37,8	32,2	52,2
Female	62,2	67,8	47,8
County of residence			
Vukovar - Srijem	52,2	50	67,4
Osijek - Baranja	35,6	35,6	19,6
other	12,2	14,4	13
Place of residence			
Village	37,8	44,4	43,5
City	62,2	55,6	56,5

Research results show that 50% of students plan to resettle after graduation, of which 25,6% of them plan to emigrate abroad. By said is partly confirmed the hypothesis H_1. Total of 21,1% of the respondents studying at The Study of Public Administration plan resettlement from the place of residence, the same is true for the 28,9% of students from The Study of Commerce and 50% of surveyed students from The study of Physiotherapy. After graduation, 67,8% of female respondents plan to move out, while 32,2% of male respondents plan to move out after graduation. Residents who are prone to migration are mostly from the Vukovar - Srijem County. In Table 3. are shown students' plans after graduation.

Table 3: Students' plans after graduation (in %) (*Survey questionnaires and author's data processing)*

Plan after graduation	Total sample	A population that does not plan for emigration	A population that generally have in mind plans to emigrate from the place of residence	Population planning to emigrate abroad
Employment	56,1	63,3	48,9	34,8
Continuation of education	31,7	35,6	27,8	19,6
Employment abroad	10,6	0	21,1	41,3
Family life	1,7	1,1	2,2	4,3

Out of the total number of respondents, 56,1% of them are planning to find employment after completion of their education, 31,7% of them will seek to continue their education, 10,6% prefer employment abroad, and 1,7% materialisation of plans for their family life.

4.2. Motivation and migration plans

In Table 4. are shown the reasons for resettlement and resettlement plans.

Table 4: Motivation for resettlement and resettlement plans (in %)(Survey questionnaires and author's data processing)

	The total population that plans resettlement N = 90	Population that plans resettlement abroad N = 46
Variables	N (%)	N (%)
Reasons for resettlement		
Continuation of education	11,1	2,2
Wish for experiencing a different environment	21,1	23,9
Greater ability to find a job	65,6	71,7
Family reasons	1,1	2,2
No answer provided	1,1	0
Reasons for moving abroad		
Inability to find a job		28,3
Hope for some new experiences		15,2
Possibility of better earnings		54,3
Family reasons		2,2
State of resettlement		
Germany		54,3
Ireland		15,2
Austria		2,2
Italy		2,2
USA		6,5
Switzerland		10,9
Other countries		8,7
Duration of the resettlement period		
Several months	13,3	8,7
Several years	51,1	43,5
Permanently	34,4	47,8
No answer provided	1,1	
Taking action related to resettlement		
Gathering information's	45,6	56,5
Search for employment	4,4	0
Search for accommodation	1,1	2,2
Everything have been undertaken and agreed	47,8	41,3
Nothing has been undertaken	0	0
No answer provided	1,1	0

The most important reason for the respondent's resettlement plans is the greater job availability (65,6%), and this is also the most common reason for resettlement among those who are planning to move abroad (71,7%). In the case of respondents who plan to move abroad, as a reason, the possibility of better earnings (54,3%) is also stated. Herewith this confirms the

hypothesis H_2. As the countries where the students are planning to move out are cited: Germany (54,3%), Ireland (15,2%), Switzerland (10,9%), USA (6,5%), Austria, Italy and other countries (8,7%). As for the time period for which the respondents are planning to move out, the resettlement of the respondents were reported for the duration of several years (51,1%), permanent resettlement (34,4%) and for a period of several months (13,3%). The respondents in question are planning to move abroad permanently (47,8%), for the period of several years (43,5%) and to several months (8,7%). Of the respondents who are planning to move out of their place of residence, 47,8% of them have already taken all the actions and agreed everything upon their resettlement, while 45,6% of them are gathering information's, and 4,4% of them are currently looking for work. Of the respondents who plan to move abroad, 41,3% of them already have taken all the actions and agreed upon everything for the resettlement, 56.5% of them are now collecting information's, and 2,2% of them for the time being, are just looking for the accommodation. In Table 5. are shown the respondents' plans after completing their studies with regard to the type of study they are now attending.

Table 5: Plans of respondents after graduation with regard to the type of study they are now attending (in %) (Survey questionnaires and author's data processing)

	Social Sciences		Biomedicine and Health	p - value*
	The Study of Public Administration N = 49 N (%)	The Study of Commerce N = 59 N (%)	The Study of Physiotherapy N = 72 N (%)	
Plan after graduation				
Employment	67,3	50,8	52,8	0.006 **
Continuation of education	30,6	37,3	27,8	
Employment abroad	2	6,8	19,4	
Family life	0	5,1	0	
Resettling from the place of residence				
Yes	38,8	44,1	61,1	0,033 **
No	61,2	55,9	38,9	
Moving abroad				
Yes	10,2	25,4	36,1	0.006 **
No	89,8	74,6	63,9	
Resettlement destination				
The other city in Croatia	73,7	42,3	43,2	0,052
Abroad	26,3	57,7	57,8	

** Hi - square test; ** statistically significant*

The research results show that exists a statistically significant correlation between student plans according to the type of study they attend (p = 0.006). Students of The Study of Physiotherapy plan to employ abroad (19,4%), as well as they observe resettlement outside their place of residence (61,1%). In the highest percentage are featured the students of The Study of Public Administration who planned employment (67,3%), and continuation of education (30,6%). After completing of their studies, students of The Commerce Study course have planned employment (50,8%), continuation of education (37,3%) and employment abroad (6,8%). The resettlement outside the place of their residence is planned by 38,8% of the respondents of The Study of Public Administration and 44,1% of the students of The Study of Commerce. It was found the statistically significant association between resettlement from the place of residence and type of study (p = 0,033), and moving abroad and the category of study (p = 0,006). Herewith have been confirmed hypothesis H_3 and H_4. In Table 6. are shown the respondents' plans after completing their studies with regard to their gender.

Table 6: Plans of respondents after completion of their studies with regard to the gender of respondents (in %) (Survey questionnaires and author's data processing)

	Male N = 63 N (%)	Female N = 117 N (%)	p - value *
Plan after graduation			
Employment	52,4	58,1	0,061
Continuation of education	28,6	33,3	
Employment abroad	14,3	8,5	
Family life	4,8	0	
Resettling from the place of residence			
Yes	46	51,3	0,535
No	54	48,7	
Moving abroad			
Yes	38,1	18,8	0.007 **
No	61,9	81,2	
Resettlement destination			
The other city in Croatia	20,7	62,3	<0.001 **
Abroad	79,3	37,7	

** Hi - square test; ** statistically significant*

After completion of their study, male respondents plan for the employment (52,4%), continuation of education (28,6%), employment abroad (14,3%) and settling family life (4,8%). Female respondents, after completion of their studies, plan for the employment (58,1%), continuation of education (33,3%) and also employment abroad by 8,5%. From the data it is evident that a higher percentage of male respondents are planning to move abroad. Migration from the place of residence is planned by 46% of male respondents and 51,3% of female respondents.

There is a statistically significant correlation of respondents' plans with regard to gender and their affiliations towards migration abroad (p = 0.007). In Table 7. are shown the plans of the respondents after graduation in accordance to the place of residence.

Table 7: Plans of respondents after graduation in accordance to place of residence (in %) (Survey questionnaires and author's data processing)

	Residence in the village N = 74 N (%)	Residence in the city N = 106 N (%)	p - value *
Plan after graduation			
Employment	59,5	53,8	0,237
Continuation of education	27	34,9	
Employment abroad	13,5	8,5	
Family life	0	2,8	
Resettling from the place of residence			
Yes	54,1	46,2	0,364
No	34,9	53,8	
Moving abroad			
Yes	27	24,5	0.417
No	73	75,5	
Resettlement destination			
The other city in Croatia	52,5	46	0,672
Abroad	47,5	54	

** Hi - square test*

After completing their studies, the respondents living in the village plan for employment (59,5%), continuation of education (27%) and moving abroad (13%). Respondents who lives in the city after completing their studies plan: employment (53,8%), continuation of education (34,9%), employment abroad (8,5%) and settling family life (2,8%). Moving abroad considers 27% of respondents that reside in the country and 24,5% of respondents that lives in the cities.

5. CONCLUSION

The given results of this research on the students' plans at the College of Applied Sciences ''Lavoslav Ružička''in Vukovar indicates unfavourable situation with regard to demography and migration profiles. Half of surveyed students plan to go abroad, which is partly confirmed by H_1 hypothesis. As a primary reason for their plans for the resettlement they cited a greater possibility of finding a job and the possibility for better incomes. This is confirmed by the hypothesis H_2. The highest percentage of respondents who planned to migrate abroad considers a permanent resettlement and most of them plan to emigrate to Germany and Ireland. Students of the The Study of Physiotherapy plans to emigrate abroad in the highest percentage of all of the observed three study courses; therefore the results of the research indicate a statistically significant correlation between the category of the study course and students' plans for the emigration abroad. Thus, H_3 and H_4 hypotheses were confirmed. The greater number of the male respondents plans to find employment abroad unlike the female respondents. With regard

to the attitudes towards migration of the surveyed village and city residents, no statistically significant differences were found between these two groups of respondents. By proceeding with the future research, we can extend the borders for this analysis towards other higher education institutions that exists in other areas of the Republic of Croatia. Given the needs of the labour market in the Republic of Croatia, more research of this type needs to be carried out in order to coordinate its needs with educational policies and types of studies at higher education institutions, and on this way, to provide such information's to the future students.

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CAUSAL RELATIONSHIP BETWEEN FOREIGN DIRECT INVESTMENTS AND MACRO-LEVEL POLITICAL STABILITY IN TURKEY

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ABSTRACT

A number of empirical and theoretical studies as well as real life experiences provide supportive evidence to the fact that political instability has an ability to harm the inflow of the Foreign Direct Investments (FDI). This study aims to explore the causal relationship between macro-level political stability and FDI while focusing on Turkey. The choice of Turkey as a subject of study is motivated by the fact that Turkish ruling party has ended the political and economic instability caused by the previous coalition governments. Despite of MTC (Multinational Terrorist Corporation)'s recent attacks and 15 July failed coup attempt which was completely different from the previous similar attempts, since it was a bloody-terrorist coup attempt targeting Turkish stability, Turkey continued to stand strong in the sense of political and economic conditions thanks to the political stability and national will. Political risk is studied since it has not received much attention in up-to-date studies treating the case of Turkey. For this purpose, the causal relationship between FDI and political stability is estimated using several econometric methods including Johansen cointegration test, the bounds testing (ARDL) approach, ECM-ARDL model as well as Granger causality test. Time series data are collected over the 15 years period ranging from 2002 to 2016. To the best of our knowledge, there have been no studies identified yet which give empirical evidence on the causal relationships between political stability and FDI inflow in Turkey. Our study aims to fill in this gap in literature and may be useful for the foreign investors and key decision makers. The results confirm a bidirectional long-run and short-run positive causal relationship between political stability, absence of violence and terrorism and FDI.

Keywords: *ARDL,Foreign Direct Investment, Political Stability, Political Violence, Turkey*

1. INTRODUCTION

Due to the globalization and the desire of businesses for internationalization, businesses have started to have increasing management activities abroad while the importance of international business activities and especially FDI has risen day by day. Compared to domestic activities, businesses may face different challenges and different types of risks while they are going global. Main types of risks in international business are political, financial, commercial and cross-cultural risk (Çavuşgil, Knight, Rammel, Riesenberger& Rose, 2014). Political risk is the most violent type of risk among these four. Additionally, businesses have different types of market entry strategies including foreign sales, contractual agreements, joint ventures and foreign investment (Dess& Miller, 1996). Typically, businesses select the way of internationalization strategy in accordance with the level of risks within the host countries (Özbozkurt, 2016). FDI, which is at the core of this study, represents the riskiest foreign market entry strategy and is more exposed to political risks. In addition, the effects of political risks on FDI are more harmful compared to the other types of entry strategies.

Political risk consists of many factors such as political violence (terrorism, war insurrection, coup d'Etat etc.), political instability, breach of contract, expropriation/nationalization, transfer and convertibility restrictions, non-honoring of sovereign financial obligations and other adverse regulatory changes (MIGA, 2011). Political violence events such as terrorism that is rising day by day and political instability become vital for FDI decisions taking into account the high level of risk. As Özbozkurt (2016) states in his study, international investors have long-term objectives since the return on investment takes more than 10 years in general. Therefore, the international investors pay more attention to political stability and they take position via the level of political risk components within the host countries.

2. POLITICAL RISK

Companies are going global as a consequence of globalization. However, globalization is not without risks and in this sense, when companies undertake international business activities, they are routinely exposed to four major types of risks including political, financial, commercial and cross-cultural risk (Çavuşgil et. al, 2014). Among these risks, the riskiest and the most violent type of risks in international business is, as mentioned before, political risk (Özbozkurt, 2016). Political risk can be broadly defined as the probability of disruption of the operations of companies by political forces and events, whether they occur in host countries or as a result of changes in the international environment. In host countries, political risk is largely determined by uncertainty over the actions not only of governments and political institutions, but also of minority groups and separatist movements (MIGA, 2011). Additionally, Drob (2014) states that factors determining the size of the political risk within the host countries are: democracy, political (in)stability, (in)stability in neighboring countries, control degree of the market by the state, size of the public sector, existence and manifestation of nationalist groups and/or terrorists. On the other hand, especially in developing nations, markets with better law and order, low religious tension, and more stable government tend to attract more FDI which is at the core of our study together with political stability and absence of political violence (Baek and Qian, 2011). In other words, promoting stable and liberal policy attracts more foreign investments to countries.

2.1. Political Violence as a Political Risk Component

Terrorism, war, insurrection and the other of types of political violence cause significant problems for business operations (Çavuşgil et al, 2014). In the context of terrorism, since the 9/11 attacks, political risks have become more important and significant determinants of FDI inflows and brought a new dimension for terrorism (Özbozkurt, 2016). The 9/11 terrorist attacks solely killed nearly 3,050 people and inflicted damage estimated at nearly $80 billion (Kunreuther, Michel-Kerjan and Porter, 2003). In this sense, strategic locations like financial centers (e.g. 9/11 events), airports (e.g. Zaventem, Domodedovo, Atatürk attacks) or MNC (Multinational Corporations)'s investments (e.g. Daesh attacks to Jakarta Starbucks) are prime targets for terrorist organizations (Özbozkurt, 2016). Even though, such events usually do not affect companies directly, their indirect impact can be disastrous (Çavuşgil et al, 2014). Nitsch and Schumacher (2003) have focused on bilateral trade flows between more than 200 countries over the period from 1960 to 1993 and showed that terrorist actions reduce not only FDI but also the volume of trade; a 200% increase in the number of terrorist incidents is associated with a decrease in bilateral trade by about 4%. Therefore, political violence factors such as terrorism, have a high impact on all kinds of foreign market entry strategies.

2.2. Political (In)Stability as a Political Risk Component

Frequently cited problem for MNC's and their investments among the political risk components is political instability. International business activities are carried out more reliably in the

direction of consistent and stable governments and their non-contradictory decisions. As Al-Swidi, Fadzil, Mithani & Shahzad (2012) state, political risks largely depend on political stability and good governance. In this sense, duration, durability in government and consistency, certainty and predictability of decisions made by governments are important elements of political stability. In other words, as Daft (2010) states, frequent changes in government affect the political stability in a certain country. It can be easily stated that governmental stability is at the core of political stability. On the contrary, governments with red tape, that tend to constantly change their laws and economic regulations and shape the country's economy with their decisions constitutes risk for foreign investors (Can, 2012). For example, in South America, Peru, the administration led by Social Democratic President Alan Garcia, has decided to expropriate all of the banks, financial institutions and insurance companies in the past whereas the same government has privatized many areas through the model of free market economy (gazetearsivi.milliyet.com.tr, Access Date: 02.11.2017). Investors, who are demonstrating their activities in such instability countries, will not be able to take decisive decisions on short and long term due to the uncertainty that arises. Moreover, countries with political instability will hamper the establishment of new businesses, but will also increase the growth opportunities of existing businesses (Can, 2012). One of the best examples in Europe in terms of political stability is Turkey and Turkish ruling party whereas the most appropriate examples in terms of political instability are MENA countries that remain an epicenter of instability and political violence for the region and the rest of the world that will be explained in detail in paragraphs to follow.

2.3. The Effect of Political (In)Stability and Political Violence on FDI

It is important to emphasize that FDI is the riskiest type of strategy for entering foreign markets (Dess and Miller, 1996). MIGA (2011 and 2013) shows that both economic concerns and political risk are of the most important constraints indicating that political and economic factors are both occupying investor's mind and are impediments to FDI. Therefore, political stability is considered to be one of the key determinants of the FDI (Özbozkurt, 2016). In the context of political instability as an important component of political risk, there are many studies (Ahmed and Root, 1979; Brada, Kutan & Yiğit, 2003; Afza and Anwar, 2014) showing the negative effect of political instability on FDI. To give a more detailed explanation, the study of Brada et al. (2003), has demonstrated that political instability, whether of domestic origin or stemming from international conflicts and tensions, significantly reduces FDI inflows in transition economies of Central Europe and the Balkans. Similarly, Afza and Anwar (2014) find that terrorism, as a political violence component and political instability have negative effects on FDI inflows in Pakistan. The survey by Hogan Lovells (2015) that includes 301 senior decision makers at Forbes 2000 companies with global annual revenues of at least USD 1bn has clearly identified that political stability is the second main factor affecting FDI decision-making process (its importance ranked 4.71/5 on average). Moreover, respondents were asked to state whether they were exposed to a political instability incident or not and the effects of the incidents. As a result, 13% of the respondents have stated that political instability has caused their investment withdrawal, 34% stated that their company has reduced investment, 32% stated that there was no effect and 21% stated that their company has increased investments. The most striking event showing the negative effects of political instability/political violence on FDI is The Arab Spring. Mohamed Bouazizi's self-immolation in Tunisia, 2010 sparked a revolution and caused a butterfly effect for almost all of the MENA region. As a result of the political violence events and political instability during The Arab Spring, investments to these countries were affected seriously. As we can clearly see from the Figure 1 below, there is a sharp decrease in FDI inflow in MENA countries, starting from the Arab Spring.

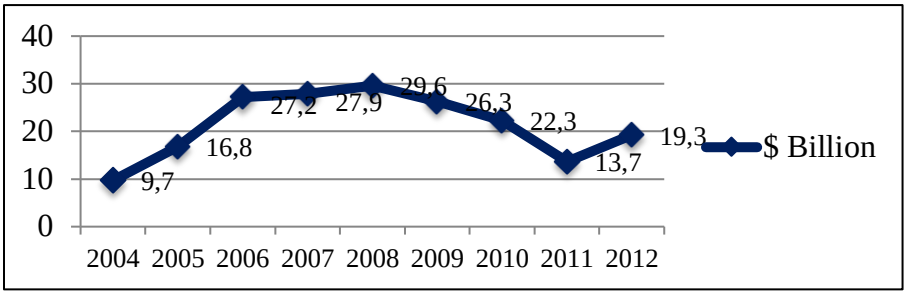

Figure 1: FDI Inflows in MENA Region, 2004–2012 $ (MIGA-EIU, 2013, p. 59)

In contrary to political instability examples stated above, political stability has a positive influence on FDI. As mentioned before, one of the best examples in terms of political stability in Europe is Turkey. As Foreign Policy and Government Guide (2010) indicates, in the 1990's, Turkey's economy suffered from a series of coalition governments with weak economic policies, leading to high-inflation boom-and-bust cycles that culminated in a severe banking and economic crisis in 2001. Additionally, during the period of series of coalition governments in 1990's, political instability and ideological discrimination against foreign investors caused the reduction in the inflow of FDI in Turkey. But in recent past, the ruling party's victory in 2002 has ended the political instability, which was fueled by short-lived coalition governments and economic instability that occurred in Turkey for many decades (https://www.dailysabah.com/politics/2017/08/14/ak-party-maintains-turkeys-political-stability-over-16-year-rule, Access Date: 02.10.2017). Turkish ruling party is a successful political party that has won every election since its foundation in 2001. Since it won the majority of votes in its first election, it sequentially has increased voting power in all subsequent elections (https://www.dailysabah.com/op-ed/2017/08/30/erdogans-return-to-ak-party-and-its-meaning-for-2019-elections). Figure 2 below simply summarizes the statistics on FDI inflow in Turkey. It also shows the positive effects of the ruling party governance on FDI inflow. FDI inflow has increased almost ten times in the period 2005-2014 compared to the period 1993-2002.

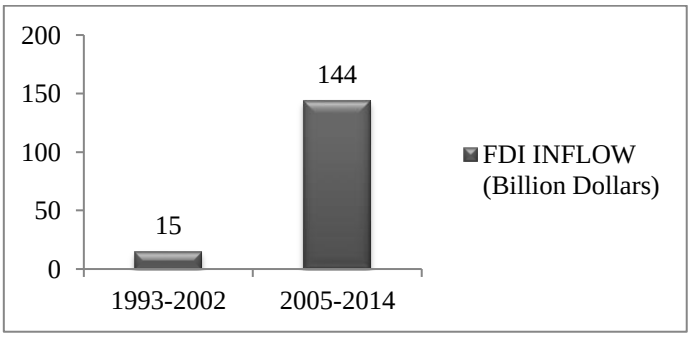

Figure 2: FDI inflow in Turkey (The Republic of Turkey Prime Ministry Office of Public Diplomacy)

Additionally, the study of Özbozkurt (2016), that is one of the most comprehensive political risk studies in Turkey, shows clearly that foreign investors believe in Turkey's stability. Moreover, while Turkey is on the target of MTC's attacks and has experienced 15 July failed coup attempt, global giant like Unilever increases investments in Turkey which constitutes the single largest FDI inflow of the last decade. This record might only be explained from the political risk perspective by the strength of political and especially governmental stability of Turkey in terms of investment decision making process. Therefore, a positive impact of political stability on FDI is expected in the case of Turkey.

On the other hand, in terms of terrorism, as a political violence component, Baek and Qian (2011) state that, since the 9/11 attacks in U.S., political risks have become more important and significant determinants of FDI inflows which clearly indicates the importance of terrorism as a political violence component. In the frame of political violence events, additional evidence on the negative effect of instability on FDI is given by Abadie and Gardeazabal (2008). Their findings indicate that on average, the increase in terrorism risk is associated with a fall in the net FDI position of about 5% of GDP.

3. DATA AND METHODOLOGY

The data, used to estimate the causal relationship between foreign direct investments and macro-level political stability in Turkey are collected over the period 2002-2016. The source of the data is World Bank (World Development Indicators, 2017). The main criterion to select a time frame was the data availability. In addition, an attempt is made to include the most recent data. Jewel (2015) indicates that political stability and absence of violence/terrorism: percentile rank (PS) is an appropriate proxy variable of macro-level political stability. Therefore this measure is considered appropriate in this paper. PS measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Percentile rank indicates the country's rank among all countries covered by the aggregate indicator, with 0 corresponding to lowest rank, and 100 to highest rank. On the other hand, Sothan (2017), Mehic et al. (2013) and Pegkas (2015) emphasize that the appropriate proxy variable of FDI is foreign direct investment measured as the ratio of FDI stock to GDP. This measure is accepted in this paper as well. The econometric objectives of this study can be summarized as follows: the first objective is to examine the stationarity of the variables; the second is to examine cointegration between the variables using the Johansen test of cointegration; the third is to give additional evidence on the long-run relationship between the variables using the analysis of Autoregressive Distributed Lag (ARDL) model, developed by Pesaran et al. (2001); the fourth objective is to estimate the short-run causal relationships using Granger causality test based on VAR (Vector Autoregression) framework. The autoregressive distributed lag (ARDL) model is being used for decades to model the relationship between (economic) variables in a single-equation time-series setup. Its popularity also arises from the fact that cointegration of nonstationary variables is equivalent to an error-correction (EC) process, and the ARDL model has a reparameterization in EC form (Engle and Granger, 1987). The existence of a long-run /cointegrating relationship can be tested based on the EC representation. A bounds testing procedure is available to draw conclusive inference without knowing whether the variables are integrated of order zero or one, I(0) or I(1), respectively (Pesaran et al., 2001). In order to test the existence of the long-run relationship, Pesaran et al. (2001) suggest that ARDL model should be estimated using OLS. The Granger causality test is performed in order to estimate the relationship between the variables and the direction of relationship.

4. EMPIRICAL RESULTS

The empirical results section starts by presenting descriptive statistics. Table 1 summarizes the obtained results.

Table following on the next page

Table 1: Descriptive statistics (Authors)

stats	**FDI**	**PS**
mean	1.694743	17.62775
sd	0.924281	6.559204
max	3.65336	27.6699
min	0.453814	5.71429
skewness	0.698846	-0.14342
kurtosis	2.800544	2.103647

Average FDI as a percentage of GDP equals 1.69%. The highest value of FDI as a percentage of GDP is reported for the year 2006 while the lowest is reported for the year 2002. Standard deviation implies high volatility for the observed period. When it comes to political stability proxy variable, average political stability and absence of violence/terrorism: percentile rank equals 17.63. The highest value of PS is reported for the year 2005 while the lowest is reported for the year 2016. Standard deviation implies high volatility for the observed period. In order to ease interpretation natural logarithm of both variables is calculated and is used in analysis to follow. Furthermore, authors have attempted to determine the number of lags needed. For this purpose information criterion procedures (Schwarz's Bayesian information criterion (SBIC), the Akaike's information criterion (AIC), and the Hannan and Quinn information criterion (HQIC)) are used. Table 2 summarizes the obtained results. The obtained results indicate that all three information criterion agree. Therefore, the selection is clear. The number of lags that is considered appropriate is 4.

Table 2: The number of lags needed (Authors)

lag	LL	LR	Df	p	FPE	**AIC**	**HQIC**	**SBIC**
0	-8.74878				0.024224	1.95432	1.90872	2.02667
1	4.40684	26.311	4	0	0.004711	0.289665	0.152856	0.506699
2	10.4736	12.134	4	0.016	0.00363	-0.08611	-0.31412	0.275614
3	17.7406	14.534	4	0.006	0.002758	-0.68011	-0.99933	-0.17369
4	50.2948	65.108*	4	0	.000037*	-5.87179*	-6.28221*	-5.22068*

In addition, the presence of unit root is investigated for both of the variables using Augmented Dickey-Fuller (ADF) test. Results of ADF test are shown in Table 3. The presence of unit root is also tested at the first differences. As the results indicate that all the time series are stationary at the first differences (for 10% level of significance), the necessary prerequisite to analyze the long-run relationship is thus met.

Table 3: Augmented Dickey-Fuller (ADF) test (Authors)

Variable		**Test Statistics**	**1% Critical Value**	**5% Critical Value**	**10% Critical Value**
lnFDI	Z(t)	-1.854	-3.750	-3.000	-2.630
	MacKinnon approximate p-value Z(t) = 0.3583				
lnPS	Z(t)	2.063	-3.750	-3.000	-2.630
	MacKinnon approximate p-value Z(t) = 0.9987				
D.lnFDI	Z(t)	-2.659	-3.750	-3.000	-2.630
	MacKinnon approximate p-value Z(t) = 0.0815				
D.lnPS	Z(t)	-2.589	-3.750	-3.000	-2.630
	MacKinnon approximate p-value Z(t) = 0.0954				

Table 4: Johansen tests for cointegration (Authors)

maximum rank	parms	LL	eigenvalue	trace statistic	5% critical value
0	14	13.913205	.	348.8529	15.41
1	17	185.60773	1.0000	5.4638	3.76
2	18	188.33966	0.42096		
maximum rank	**parms**	**LL**	**eigenvalue**	**max statistic**	**5% critical value**
0	14	13.913205	.	343.3891	14.07
1	17	185.60773	1.0000	5.4638	3.76
2	18	188.33966	0.42096		

In order to examine the existence of cointegration between the selected variables, the Johansen test for cointegration is applied. The FDI is the dependent variable and PS is independent variable. The Johansen test is set up on two test statistics; these are the Trace and Max statistic. The Johansen cointegration results are shown in Table 4. The empirical results confirm that the values of the trace tests and those of the maximum eigenvalue tests are greater than the critical values. This confirms that the null hypothesis on no co-integration (r = 0) is rejected by both the maximum eigenvalue and trace statistics. This indicates the existence of a long-run equilibrium relationship between FDI and PS for the period being investigated. After testing the stationarity of the series, we apply ARDL bounds testing approach to investigate cointegration for long-run relationship between foreign direct investments and political stability of the Turkish economy. ARDL/EC model is estimated followed by bounds testing. Table 5 summarizes the results of ARDL/EC model. Three lags are used due to the low number of observations.

Table 5: ARDL/EC model (Authors)

D.lnFDI		Coef.	St. Error	t	P>t	95% Conf. Interval	
ADJ	D.lnFDI L1.	-0.934	0.275	-3.03	0.019	-1.484	-0.183
LR	D.lnPS L1.	2.129	1.047	2.03	0.082	-0.348	4.604
SR	D.lnPS D1.	0.708	0.588	1.21	0.267	-0.681	2.098
	_cons	0.136	0.116	1.17	0.282	-0.139	0.411

A significant positive coefficient (for a 10% level of significance) for long-run relationship (table 5) confirms the existence of long-run relationship between the variables FDI and PS. Besides that, Pesaran/Shin/Smith ARDL Bounds Test indicates the rejection of hypothesis on no levels relationship. Therefore, bounds test confirms the existence of a long-run relationship between FDI and PS for a case of Turkey.The interpretation of the regression coefficient can be given as follows: 1% increase in PS leads to 2.13% increase in FDI in long-run. The coefficient in short-run is not reported to be significant. The direction of causality cannot be told through the Johansen cointegration test; therefore, the Granger causality test based on the VAR model is applied. The study focuses on the bivariate Granger causality analysis to examine the causal impact of PS on FDI in Turkey. For the empirical analysis, there are two models to be estimated using bivariate Granger causality test. The findings of the Granger causality analysis are presented in Table 6.

Table 6: Granger causality Wald tests (Authors)

Equation	Excluded	chi2	df	Prob>chi2
D.lnFDI	D.lnPS	109.4	4	0.000
D.lnFDI	ALL	109.4	4	0.000
D.lnPS	D.lnFDI	10882	4	0.000
D.lnPS	ALL	10882	4	0.000

The results indicate a positive relationship running from PS to FDI. There is also a strong evidence to that movement of FDI will affect PS. Therefore, the Granger causality test indicates a bidirectional relationship between FDI and PS in Turkey in the period between 2002 and 2016. A two-way Granger causality relationship between FDI and PS is suggested by Nadem (2015).

5. CONCLUSION

This study aimed to explore the causal relationship between macro-level political stability and FDI while focusing on the case Turkey. The choice of Turkey as subject of study is motivated by the fact that Turkish ruling party has ended the political and economic instability caused by the previous coalition governments. Despite of MTC's recent attacks and 15 July failed coup attempt, Turkey continued to stand strong in the sense of political and economic conditions thanks to the political stability and national will. Political risk is explored since it has not received much attention in studies treating the case of Turkey. The causal relationship between FDI and political stability is estimated using several econometric methods including Johansen cointegration test, the bounds testing (ARDL) approach, ECM-ARDL model as well as Granger causality test. Time series data are collected over the period ranging from 2002 to 2016. The empirical results of Johansen cointegration test confirm that the null hypothesis on no co-integration ($r = 0$) is rejected. This indicates the existence of a long-run relationship between PS and FDI for the period being investigated. Moreover, ARDL indicates a significant positive coefficient (for a 10% level of significance) with PS in the long-run relationship. Therefore, the PS is found to have a positive impact on FDI in the long-run. In addition, Pesaran/Shin/Smith ARDL Bounds Test indicates the rejection of hypothesis on no levels relationship. Therefore, bounds test confirms the existence of a long-run relationship between PS and FDI for a case of Turkey. Furthermore, the Granger causality test indicates a positive relationship running from PS to FDI. There is also a strong evidence to that movement of FDI will affect PS. Therefore, a bidirectional relationship between FDI and PS in Turkey in the period between 2002 and 2016 is reported indicating that the improvement in political stability attracts foreign direct investments and that increase in FDI can lead to the improvement in political stability.

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THE WAR ON THE CEREALS MARKET - THE EUROPEAN UNION VERSUS THE UNITED STATES OF AMERICA

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ABSTRACT

The purpose of this article is to analyze in detail the world cereals market as well as the forecast based on the latest cereals market data published by the European Commission and the State Department of Agriculture of the United States of America. Good knowledge of a market with such social and economic importance is necessary, whether we are referring to the individual producer or the entire global market. The analysis is based on the quantities obtained, production costs, sales prices, trade and forecasts. For example, the impact of the euro-dollar exchange rate and appreciation of the euro in front of the US dollar, 1€ = $ 1.17, influenced the amount of oil used in the European Union, agriculture being one of the most important oil consumers full, so the impact on the cereal market has determinate a superior production both quantitatively and qualitatively. The article will present most of the economic factors that influence the cereals market as well as the Common Agricultural Policy influencing the cereals market every year. A special section is represented by the forecast section provided by the State Department of Agriculture of the United States of America. The grain supply for 2018 is estimated to be 751.2 million tons of wheat, down 3 million tons compared to the record production from last year, in relation to the area cultivated in the autumn. Demand is estimated at 739.6 million tons, demand higher by 2 million tons over the previous year. Grain stocks reached a record high of 268.1 million tons due to China's huge stock of 127.3 million tons and Russia's 17.3 million tons. The European Union will record a larger production of 2.2 million tons compared to the previous year.

Keywords: *Cereals, Common Agricultural Policy, European Union, Market, USDA*

1. INTRODUCTION

Agricultural economics arose in the late 19th century, combined the theory of the firm with marketing and organization theory, and developed throughout the 20th century largely as an empirical branch of general economics. The discipline was closely linked to empirical applications of mathematical statistics and made early and significant contributions to econometric methods (Ader, 2008, p.333). In the 1960s and afterwards, as agricultural sectors in the OECD countries contracted, agricultural economists were drawn to the development problems of poor countries, to the trade and macroeconomic policy implications of agriculture in rich countries, and to a variety of production, consumption, and environmental and resource problems (Runge, 2006, p. 1- abstract). Cereals market from an economic point of view is very close related not only to land, weather and technology, it is subordinated to the capital market either local or international, the foreign direct investment determinates the size and profitability and also gives the market stability (Dona, 2015, p. 72). Capital markets are defined as financial markets where the liquiditys are granted or invested for period longer than one year. Efficiency seeking investors are always looking for safe investments, agriculture has always been one of the most safe investment, it is one of the few markets without which human society cannot move forward (Cretu, R.F., Gutu, C., Cretu, R.C., 2013, p. 182). The factors affecting investments decisions in a foreign country are very close related to political stability, legal environment, market size and stability, tax rates and skilled labour (Alecu, I.N., Stefan, P., Cretu R.C., 2016, p. 33).

Given the domain of the University I am working at, I can say that in the last decade the cereals market proved to be very stable, investors who invested in this sector didn`t found themselves subject to risks that affect other markets. As an example in the European Union the financial crisis that started in december 2007 affected the financial market worldwide, led to a liquidity crisis that caused a substantial injection of capital into the financial markets from the US Federal Reserve, the Bank of England and the European Central Bank, the ripple effect lasted for another 5 years in other country's even more, in the same time the cereals market was not effected as much as other markets, the value of agricultural products increased almost in every year, the basic price defined as the price received by the producer have summed up to the value of 195,1 millions euro in 2007, highest record was in 2013 when the cereals market summed up 220 million euro and in 2017 the value of cereals market was 213,9 millions euro.

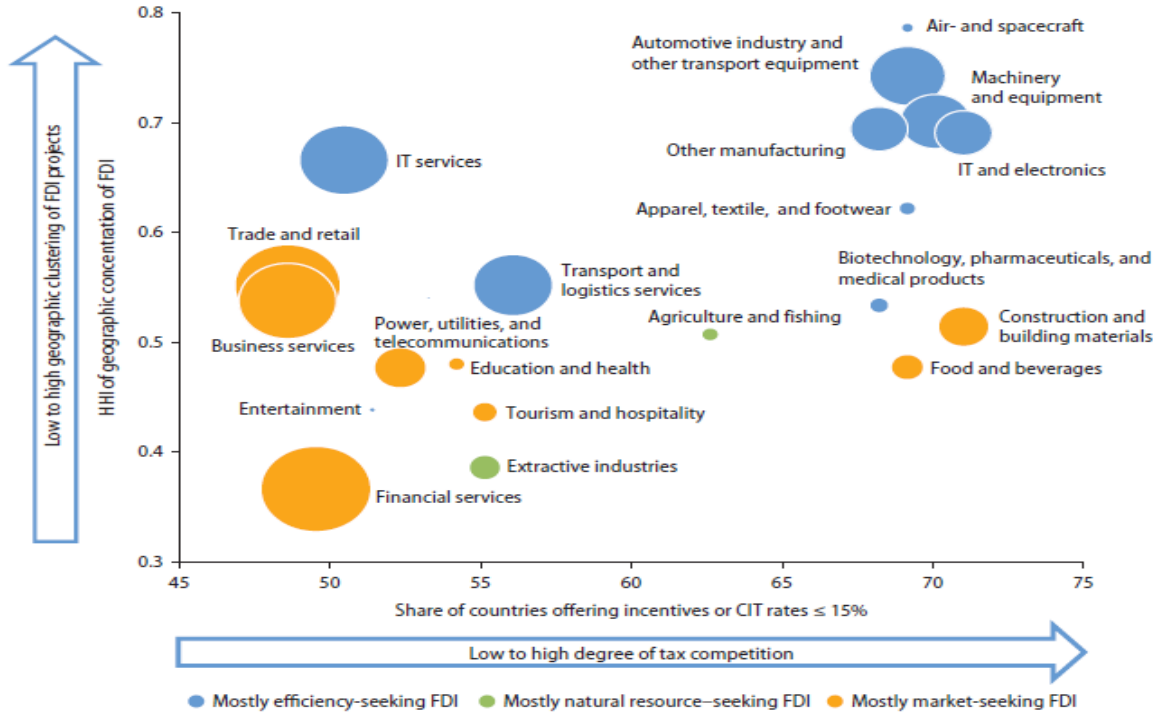
2. MATERIAL AND METHOD

The research material is largely made up of the official publications of the European Agriculture Committee and the US Department of Agriculture, the Global Investment Competitiveness Report 2017/2018 Foreign Investor Perspectives and Policy Implications issued by the World Bank Group and other specialized articles in this field. The chosen method is data analysis, data analysis technique that focuses on modeling and knowledge discovery for predictive rather than purely descriptive purposes, while business intelligence covers data analysis that relies heavily on aggregation, focusing on business information. In statistical applications data analysis can be divided into descriptive statistics, exploratory data analysis (EDA), and confirmatory data analysis (CDA). EDA focuses on discovering new features in the data and CDA on confirming or falsifying existing hypotheses. Predictive analytics focuses on application of statistical models for predictive forecasting or classification, while text analytics applies statistical, linguistic, and structural techniques to extract and classify information from textual sources, a species of unstructured data. All are varieties of data analysis.

3. RESULTS AND DISCUSSIONS

The results of the analysis made on the basis of the materials used strengthened what we thought the cereal market is a safe market in which to invest, the risks are mostly covered by the demand manifested each year so that this sector will always be protected by the state, so the producers will be able to operate and maintain this profitable market. Further results will be explained in detail as well as the factors that characterize this market. First of all I would like to start with the demand on the market, demand manifested in the case of the need for food consumption registered worldwide. Over the last century, the global population has quadrupled. In 1915, there were 1.8 billion people in the world. Today, according to the most recent estimate by the UN, there are 7.3 billion people - and we may reach 9.7 billion by 2050. This growth, along with rising incomes in developing countries (which cause dietary changes such as eating more protein and meat) is driving up global food demand. Food demand is expected to increase anywhere between 59% to 98% by 2050. This will shape agricultural markets in ways we have not seen before. Farmers worldwide will need to increase crop production either by increasing the amount of agricultural land to grow crops or by enhancing productivity on existing agricultural lands through fertilizers and irrigation and adopting new methods such as precision farming. However, the ecological and social trade-offs of clearing more land for agriculture is often high, especially in the tropics. And right now, crop yields - the amount of crops harvested per unit of land cultivated - are growing too slowly to meet the forecasted demand for food. Many other factors, from climate change to urbanization to lack of investment, will also make it challenging to produce enough food. There is a strong academic consensus that climate change-driven water scarcity, rising global temperatures and extreme weather will have severe long-term effects on crop yields.

The Midwestern U.S. a globally important region - may also see a substantial decline in agricultural output due to extreme heat. Nonetheless, doubling food production by 2050 will undoubtedly be a major challenge, even if some regions increase their output and traders. Businesses and governments will have to work together to increase productivity, promote innovation, and improve integration in supply chains towards a sustainable global food balance. Still, investment in agriculture in most developing countries has declined over the last 30 years and much less is spent on R & D compared to developed countries, resulting in low productivity and stagnant production. And since the banking sectors in developing countries give fewer loans to farmers, investments by both farmers and large corporations are still limited. To attract more funding and investment in agriculture, the risks need to be reduced by governments. Regulators need to overhaul policies that limit the inclusion of small, rural farmers into the financial system - for example, soft loans and interest rate caps to discourage bank lending. More supportive policies, laws and public spending on infrastructure would help create a favorable investment climate for agriculture. The international capital market focuses its liquidities to efficiency-seeking investments.



Source: Developing Country Tax Incentives database and FDI data from fDi Markets database, the Financial Times.
Note: The size of each bubble represents the number of FDI projects within the sector in developing countries. This was constructed based on information from the fDi Markets database. CIT = corporate income tax; FDI = foreign direct investment; HHI = Herfindahl-Hirschman Index; IT = information technology.

Chart 1: The international capital market (www.oxfordscholarship.com)

As seen in the chart above, investors are choosing sectors such as financial services, commerce and business services, while the most sought after investments are IT services, automotive industry, machinery and equipment. The cereal market as we have said is closely related to investments and as we can see the volume of investments is modest in agriculture but from the point of view of efficiency, agriculture is over the financial sector. Why? Most likely because of the cyclicality of the products, in the case of agriculture particular cereals, there is only one production per cycle in one year, while in markets like trade and retail there may be one cycle per day. Perhaps this is why investors choose to invest in a market that can make a profit in a relatively short time. The supply on the cereal market is the production of cereals made in one year by farmers or agricultural companies specialized in large or very large agricultural crop production.

Food and Agriculture Organization of the United Nations release in 7-XII-2017 the newest report regarding cereal supplies world-wide, as follows:

- FAO's forecast for global cereal production in 2017 now stands at 2 627 million tons, 16.8 million tons (0.6 percent) higher than last year's level, following a sharp upward revision of 13.4 million tons made this month.
- The bulk of the latest revision concerns coarse grains, the production of which in 2017 is forecast at 1 371 million tons, up nearly 24 million tons (1.8 percent) from 2016 and some 11 million tons higher than it was anticipated in November. The increase from November is mostly driven by higher estimates for maize production in the United States, following positive revisions for yields, and in Indonesia, where production is now estimated at a record high as a result of a significant expansion in plantings. These increases more than compensated for a cut to Ukraine's maize output.
- Global wheat production in 2017 has also been adjusted upwards since November, but by a lesser degree compared to coarse grains, mainly reflecting a higher-than-previously projected output in the EU, which more than offset a lowering of production in Argentina. This year's world wheat output is currently forecast at 754.8 million tons, 1 percent lower than in 2016.
- World cereal utilization is forecast at 2 599 million tons, some 31 million tons (1.2 percent) higher than in 2016/17 and 6.4 million tons above the FAO November forecast. The increase from last month mostly reflects upward adjustments to overall consumption of coarse grains.
- The forecast for total utilization of coarse grains in 2017/18 has been raised by almost 5 million, largely because of upward revisions to feed use of maize. Driven by large supplies and lower prices, total feed use of maize in 2017/18 is now pegged at 592 million tons, 4 million tons more than it was projected in November and nearly 14 million tons (2.3 percent) higher than in 2016/17.
- Wheat utilization in 2017/18 is forecast at 740 million tons, slightly higher than it was projected last month and 6 million tons (0.8 percent) above the 2016/17 estimated level. Food consumption of wheat is set to expand by 1.1 percent, to an all-time high of 504 million tons.
- World rice utilization is expected to expand by 1 percent in 2017/18 to 503.0 million tons. Food use remains foreseen to drive the projected growth, while somewhat tighter availabilities cause all other end-uses to edge down over the course of the season.

Cereal stocks surpassing last year`s record:

- World cereal stocks are projected to reach a new high of 726 million tons, up as much as 22 million tons (3 percent) from their already high opening levels and 7 million tons above the November forecast. At this level, the world stocks-to-use ratio of cereals is projected at 27.3 percent, up slightly from 2016/17 and the highest since 2001/02.
- Global wheat stocks (ending in 2018) are forecast to hit an all-time high of 257 million tons, down slightly from the November forecast but still 13 million tons (5 percent) above their already high opening levels. The sharp increase from 2016/17 is mainly driven by large stock buildups in China and the Russian Federation, more than offsetting drawdowns in North America.
- The forecast of coarse grain inventories (ending in 2018) has been raised to a record level of around 299 million tons, up 7 million tons from November. The increase from last month reflects higher-than-earlier anticipated build-ups of maize stocks, particularly in the United States.
- Reflecting higher anticipated carry-overs in Bangladesh, India and Vietnam, FAO's forecast of global rice inventories in 2018 has been raised by close to 1.0 million tons

to 170.2 million tons. At this level, world carry-overs would stand 0.6 percent above their opening levels, as continued accumulations in China are anticipated to more than offset drawdowns in the major rice exporting countries.

The supply, demand and stocks on the world cereal market are expressed in the graphic below.

Chart 2: The supply, demand and stocks on the world cereal market (Source FAO)

Analyzing the data reported by FAO we can elaborate the following observations:

- The production curve marked with orange represent the supply and is not so consistent because it depends on natural factors like weather.
- The utilization represent demand, as we can observe it is constant demonstrating the stability of the cereal market,
- The stocks represent the quantity of cereals stored in deposits or silos, which is used throughout the year until a new production is harvested.

The most important producers in the world cereal market are the European Union and the United States of America, this economic **"war"** began in the 1970s and the most sensitive point was in 1992 when the reform of the Common Agricultural Policy was made.
One of the factors behind the 1992 reforms was the need to reach agreement with EU foreign trade partners at the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) talks on agricultural subsidies. In 1992, MacSharry reforms (named after the European Commissioner for Agriculture, Ray MacSharry) were created to limit rising production, while at the same time adjusting to the trend towards a more free agricultural market. The reforms reduced the levels of support by 29% for cereals and 15% for beef. The European Union focused on production and exports while the United States was focusing on the cereals market, subsidies to the EU were returning to farmers in the form of subsidies coupled with production and export refunds that encouraged farmers to produce and export as much as possible, while the United States subsidized farmers at prices, if the market price was too low than the guaranteed price, farmers were encouraged to sell for later to receive subsidies from the federal government, if the market price was higher than the guaranteed price better for farmers who could make more profit. According to the data provided by the International Trade Center, which has been the focal point of the United Nations system for trade related technical assistance, the dates are consistent with regard to the world-wide cereals export in value.

Table 1: The world-wide cereals export (International Trade Center)

Exporters	Exported value in 2012	Exported value in 2013	Exported value in 2014	Exported value in 2015	Exported value in 2016
World	93655201	92630414	90440658	93630496	86409066
European Union (EU 28) Aggregation	20060833	22541504	21018925	22579190	20110940
United States of America	16030234	15283944	17190740	16936990	17167771
Argentina	7409792	6257859	3940132	4362336	6302456
Ukraine	5420368	4796771	4923187	5457225	5232441
Canada	5849306	6077482	6585645	6609358	5081168

Based on the official data received by the International Trade Center, we can make the following observations:

- World-wide exports were in the amount of 86,4 billions euro in 2016, less than in the previous year when the export in the amount of 93,6 billions euro, decrease is by 7.7 percent. The decrease in export is due the smaller stocks and producing countries need cereals for domestic consumption.
- European Union export of cereals has meant 23.3 percent of all global exports in 2016, value of export in 2016 were 20,1 billions euro down 11 percent from the previous year, when EU exported cereals in the amount of 22,5 billions euro.
- United States of America is the second largest exporter in 2016 when the value exports meant 19,8 percent of all global export world-wide, in 2016 USA exported cereals in the amount of 17,1 billions euro.

The most important trade center in EU is Rouen in France and Black Sea, US and Gulf Region. The prices in the US are higher as expected because of the distance, bring cereals to the importing country, transport is expensive and is added to the final price paid.
Gulf Region is the center where most of the exports go to, climate and land is not favorable to any kind of agricultural production.

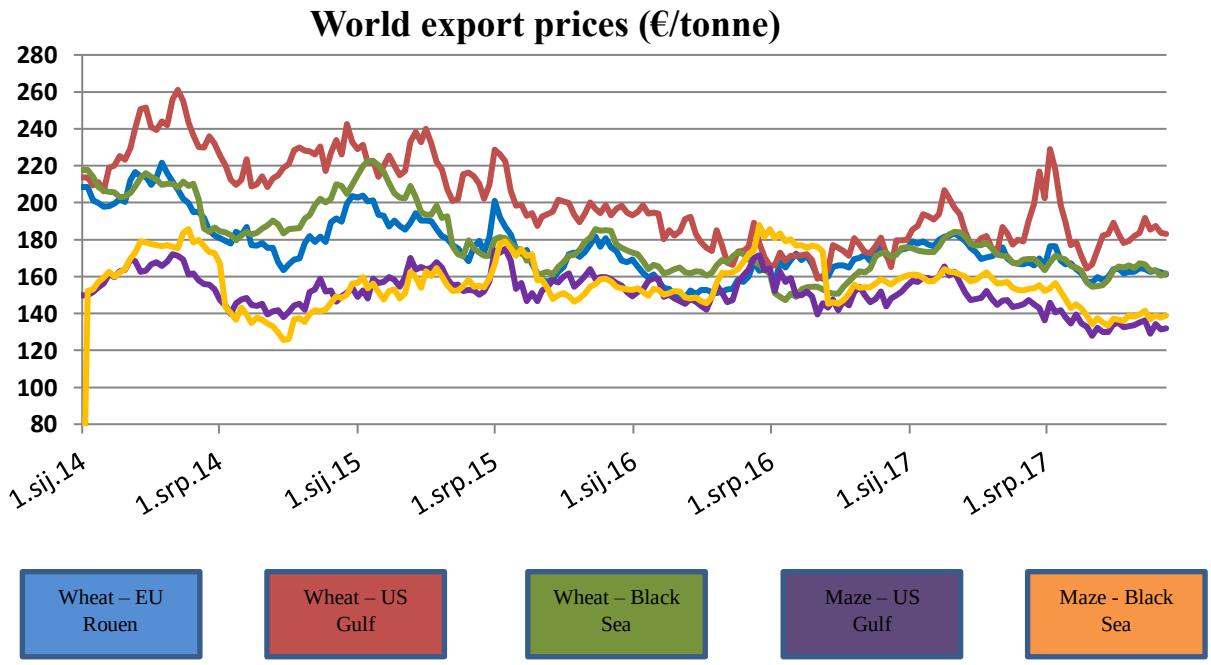


Chart 3: World export prices (Source: International Grain Council, France Agrimer)

The exchange rate Euro – US Dollar is another factor that strongly influences the cereals market, there are very large producers of inputs needed for agriculture that are located in the United States of America, inputs that are used in the European Union, the exchange rate strongly influences these exchanges.

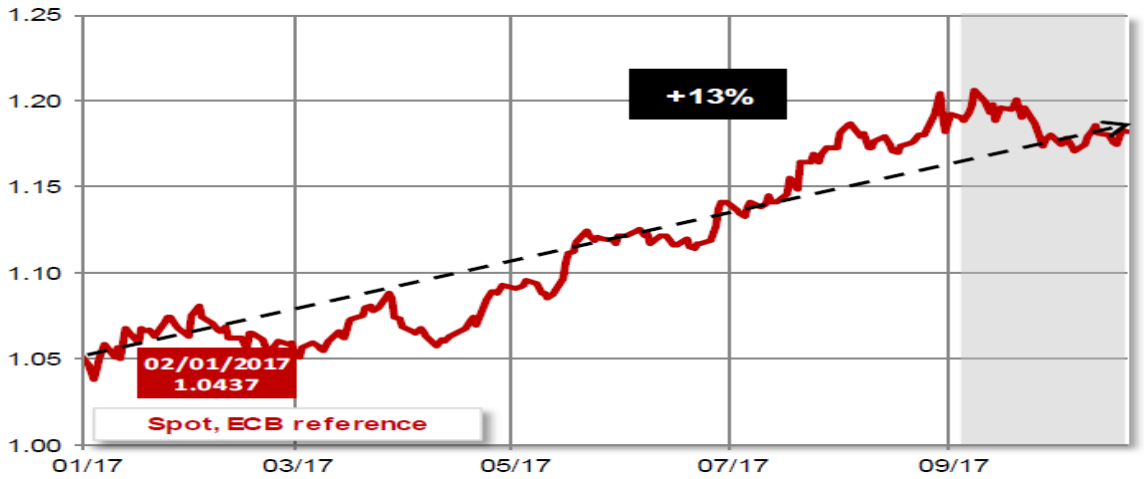


Chart 4: The exchange rate Euro – US Dollar (Source: worldbank.org)

For example, if a farmer in France wants to buy an agricultural tractor made by John Deer, John Deer being one of the best tractors used in agriculture, the farmer will have to pay for exchange rate difference, if the farmer were to buy a tractor made in EU, the production costs of a Class tractor for example, would have been in euros and the farmer's income would still be in euros and when he will make the choice of buying a tractor he will choose most likely a Class tractor, the price difference between the two tractors is not only the technology but also the difference between the two currency.

4. CONCLUSION

The European Union focused on production and exports while the United States was focusing on the cereals market, subsidies to the EU were returning to farmers in the form of subsidies coupled with production and export refunds that encouraged farmers to produce and export as much as possible, while the United States subsidized farmers at prices, if the market price was too low than the guaranteed price, farmers were encouraged to sell for later to receive subsidies from the federal government, if the market price was higher than the guaranteed price better for farmers who could make more profit.

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THE IMPORTANCE OF THE INTERNET IN FORMING OF THE PUBLIC OPINION AND ITS INDISPENSABILITY FOR CONTEMPORARY ECONOMY: AN ONLINE SURVEY

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ABSTRACT

The presence of the Internet in everyday life of a significant part of the world's population has become a reality. Among the younger populations in developed countries and emerging economies, as well as in the respectable number of developing countries, the permeability of the Internet (as well as mobile networks, thereby giving access to the Internet practically permanently) has reached well over 70 percent or in some cases close to 100 percent. Social networks have become an omnipresent aspect of life for hundreds of millions of people. Digital economy has enabled "the Fourth Industrial Revolution", as current development in business that is performed dominantly or exclusively over the Internet is often referred to. Aware of these developments, we have decided to perform an online survey (the choice of the type of survey and the media serves as a pointer of the importance of the Internet) about the different aspects of the Internet use, mainly focusing on the importance of the Internet for receiving information, forming of opinions and attitudes, as well as its importance for certain business activities and/or performing everyday duties at some person's job. We have used Google form as a survey method, combining single and multiple choice questions, as well as one question with Likert scale, and guaranteed the anonymity of the responders by not collecting their e-mail addresses. We have shared our questionnaire on Facebook and via e-mail, and kindly asked our Facebook friend as well as our colleagues to share it further. Certain questions were used as test questions, to show the importance and power of the social networks contrary to the "traditional" way of sharing data, such as e-mail. We conclude that, despite their clearly shown ubiquity and importance, the Internet and social networks, still have a lot of space for spreading, especially among the middle aged and elderly population.

Keywords: *the Internet, internet (online) survey, Google forms, social networks, public opinion, digital economy*

1. INTRODUCTION AND LITERATURE REVIEW

The presence of the Internet in everyday life of a significant percentage of the world's population has become a reality. In developed countries, and especially among the younger population in developed countries and emerging economies, as well as respected number of developing countries, the penetration of the Internet (as well as mobile networks, thereby giving access to the Internet practically permanently) has reached well over 70 percent or in some cases close to 100 percent. Social networks have become an omnipresent aspect of life for hundreds of millions of people. Digital economy has enabled "the Fourth Industrial Revolution", as current development in business that is performed dominantly or exclusively

over the Internet is often referred to. Aware of these developments, we have decided to perform an online survey (the choice of the type of survey and the media serves as a pointer of the importance of the Internet) about the different aspects of the Internet use, mainly focusing on the importance of the Internet for receiving information, creating opinions and attitudes, as well as its importance for business activities and/or performing everyday duties at some person's job. According to Techopedia, an online survey is "a questionnaire that the target audience can complete over the Internet. Online surveys are usually created as Web forms with a database to store the answers and statistical software to provide analytics. People are often encouraged to complete online surveys by an incentive such as being entered to win a prize.[1]" The Internet has become a place of business and social life a long time ago. It has been about since the Internet has become widespread, and the rise in its permeability has never stopped. From the studies we have consulted, we would like to emphasize the ones that studied the attitudes towards online shopping, the role of brands in shopping of tourism services, the gender factor in online tourist services shopping, the effectiveness of marketing channels, the use of social networks and the social capital among young population in Croatia, and the problems of Internet use in general, that can lead to Internet addiction. Through our survey, we also tried to compose our questions to address some of the issues investigated by the papers that we are mentioning here. Huseynov and Özkan Yıldırım (2016) have studied the attitudes toward online shopping of university students in Ankara, Turkey. Internet users' concerns toward online shopping were assessed by considering financial issues, product quality issues, refund issues, product delivery issues, security issues and privacy issues. Findings of this study guide online retailers which factors to focus on in order to develop successful marketing strategies for online consumers. Moisescu and Bertea (2013) analyzed potential (not actual) customers of tourist services, comparing same-respondents answers in two scenarios (buying online from a known travel agency but with which they had never had any previous experience as customers, and, respectively, buying online from an unknown travel agency), and two sub-scenarios (prices similar to or lower than competition), regarding five specific types of risks (financial, performance, social, privacy/ security, technical), and overall perceived risk. When it comes to buying online from travel agencies, higher brand awareness means lower perceived risks, while a lower pricing positioning strategy involves higher perceived risks by new (potential) customers, the results showed. Kim, Lee, and Chung (2013) identified factors that affect trust in online tourism shopping, including transaction security, navigation functionality, and cost-effectiveness. It examines the effects of these factors on trust and the relationship between this trust and repurchasing intentions. An online survey of Internet users who had shopped online for a tourism-related product or service within the past year was conducted. Gender had a significant moderating effect i.e. the thought processes of males strongly affected the influence of cost-effectiveness on trust and the impact of trust on repurchase intention in comparison with females. Juščius, Labanauskaitė, and Baranskaitė (2016) tried to determine which marketing channel was the most efficient. The authors have analyzed and described the efficiency of each online marketing channel. Quantitative research method was used to analyze the efficiency of online marketing channels. A survey of Lithuania's internet users reveals the most acceptable (efficient) online marketing channels[2]. Krolo and Puzek (2014) analyzed the association between the usage of internet social networks (in the example of Facebook) and the participatory dimensions of social capital of youth in Croatia.

[1] https://www.techopedia.com/definition/27866/online-survey.

[2] The authors have to the following conclusions: WEB 2.0 is a very powerful online marketing tool. Social networks and blogs are equally useful. Company news on social networks is followed by 43% internet users and 42% of respondents read blogs. In most cases they are living in suburbs (55.6%), most seldom – people living in rural areas (40%). 40% of respondents favored the companies that are active in the social networks. The most popular social network in Lithuania is Facebook.com (83.4%). Other social networks are not very popular.

The research used R.D. Putnam's operationalized participatory dimensions of social capital as well as theories of internet social networks as potential agents of social capital. The research was conducted via online survey in 2012 on a convenience sample of Croatian youth (number of responders was 577). The results indicate there is a consistent link between the usage of internet social networks and the number of memberships in non-govern mental organizations and civil activism. Chiang and Su (2012) analyzed the causes of problematic Internet use through an online survey, where 1 094 samples were collected. The conclusions are the following: First, novelty, security, and efficiency increase users' online trust. Second, information and efficiency enhance users' sharing and anonymity online. Third, greater trust in Internet environments leads to an increase in a user's cognitive bias toward online behavioral responsibility and Internet addiction. Fourth, a user's attitude toward online sharing further increases the cognitive bias toward online copyright. Fifth, a user's attitude toward anonymity increases cognitive bias toward online copyright, online behavioral responsibility, and deepens Internet addiction.

2. METHODOLOGY

We have used Google form as a survey method, combining single and multiple choice questions, as well as one Likert scale question, and guaranteed the anonymity of the responders by not collecting the e-mail addresses. We have shared the survey on Facebook and via e-mail, and kindly asked our colleagues to share it further. We offered no prizes, and clearly stated that the results will be used only in scientific purposes, excluding any commercial use. Thus, we relied on the interest, good will and altruism of the responders, to provide us with answers. Hence we are aware how precious the time is today, and relied on the kindness and altruism of the responders, we tried to keep the questionnaire as simple as possible, in order to maximize the number and honesty of the responses, by minimizing the time and effort needed to fill the survey and submit it. A question about the use of social networks (with a simple yes or no answer) was used as a test question (hence the form was shared mainly via Facebook) to show the importance and power of the social networks contrary to the "traditional" way of sharing data, such as e-mail. Only one question (the last one), about the social networks they use, demanded the responders to write the names of the networks, and the answering to that question was not obligatory. Over the course of eight days, starting on November 25th and concluding on December 3rd, 2017, we have collected a total of 134 responses to our survey, which was comprised of 20 questions. The questionnaire was made up of four sections. Four questions (gender, age, activity status, and income level) were posed first, to determine the structure of the respondents. Then, the questions about the economic value of the Internet and the use of online shopping were posed. The third section of the questionnaire addressed the use of internet and social networks in information gathering. The last question of the questionnaire was excluded from the results. It was of descriptive nature i.e. the responders had to write which social networks they use. However, hence the questionnaire was mainly shared over Facebook; it was rather obvious that the majority of the responders use it, as well as some other social networks, but on a much lower scale. Question number 19, addressing the use of social networks (Do you use social networks, possible answers yes or no) was left in the survey results, although it was also obvious that the answer will overwhelmingly be positive, hence the survey was shared on Facebook. Nevertheless, the survey was also shared via e-mail to colleagues. Therefore, the result was not excluded, to show the reach and speed of information sharing over Facebook.

3. RESULTS AND DISCUSSION

The results that we have collected show that the Internet has become truly ubiquitous, at least among our responders. We gave our responders either the single choice or multiple choice

answers, with only one question requiring a descriptive answer: Which social networks do you use? We used Likert scale in the question number 7: "What is the quality of good and service bought over the Internet, compared to the same bought in "general sales" i.e. in the stores?"

The answers to the questions determining the structure of the responders were as follows:

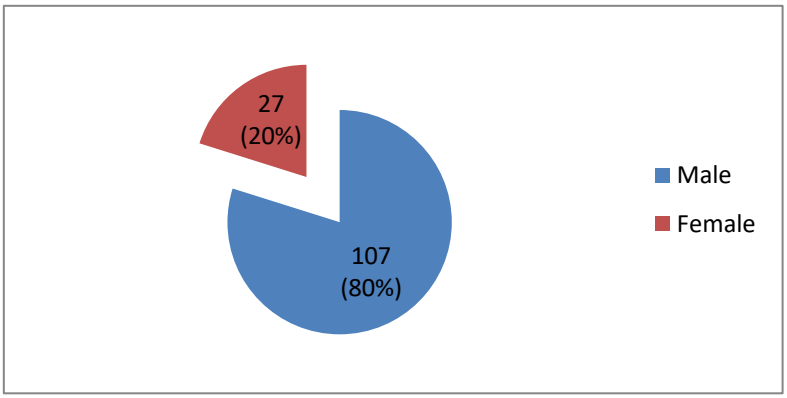

Figure 1: The structure of the responders by gender

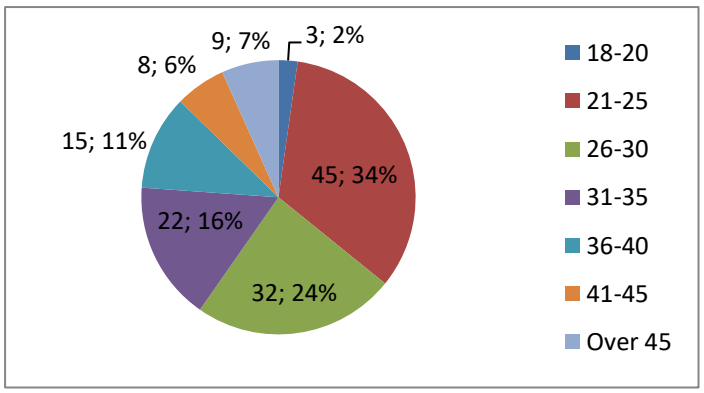

Figure 2: The structure of the responders by age (years)

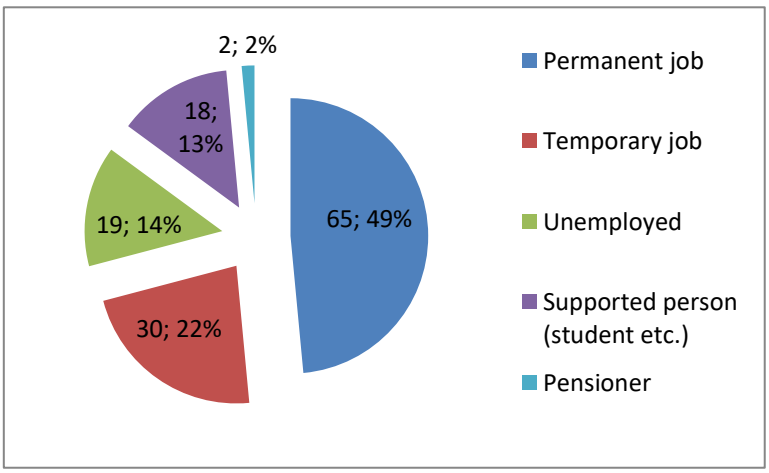

Figure 3: The structure of the responders by the activity status

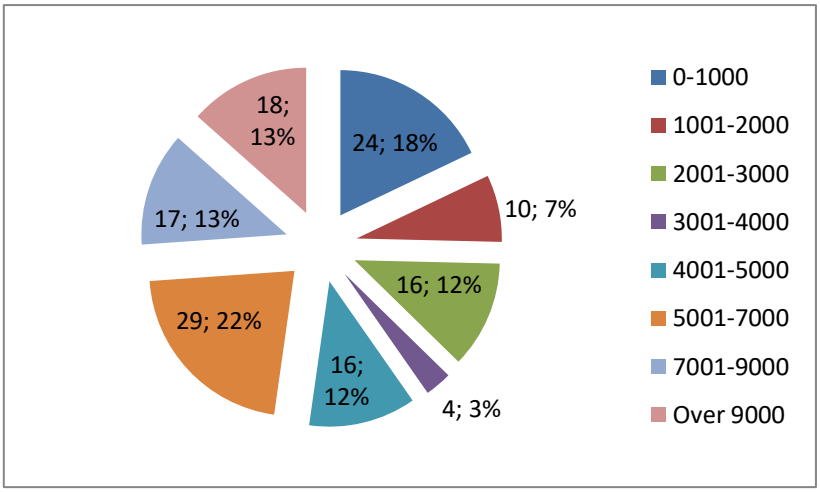

Figure 4: The structure of the responders by the income level (in Croatian Kunas, 1 Euro cca. 7.5 Croatian Kunas)

The second section of the questionnaire comprised the questions that targeted the use of the Internet in the economic activities of the responders:

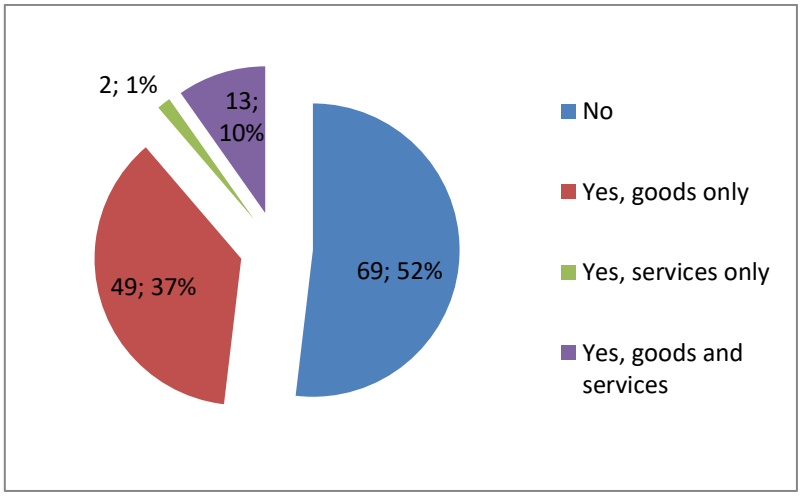

Figure 5: Have you ever sold anything over the Internet? (One answer was not submitted)

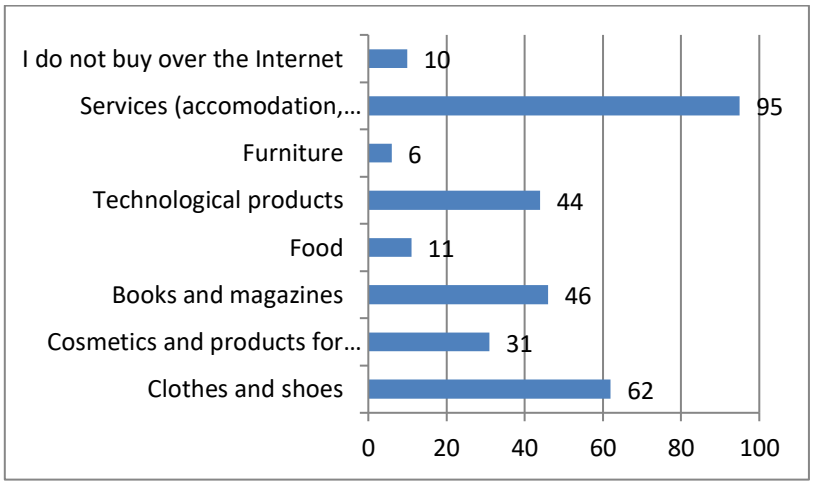

Figure 6: What do you buy over the Internet (most frequent)? (Multiple choice question)

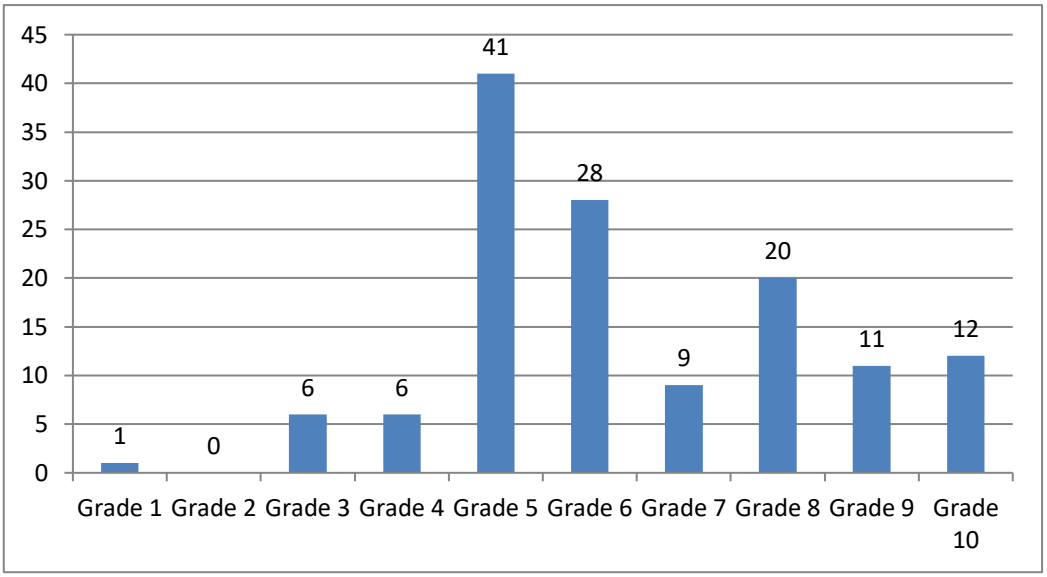

Figure 7: What is the quality of goods and services bought over the Internet, compared to the same goods and services bought in "general sales" i.e. in the stores? (Likert scale was used, 1 – the goods bought over the Internet are much worse, 10 – the goods bought over the Internet are much better)

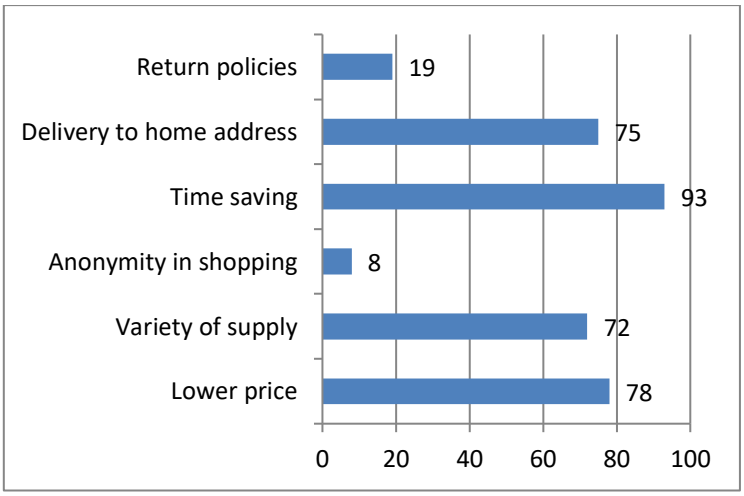

Figure 8: What is your main motive for online shopping? (Multiple choice question, four answers were not submitted)

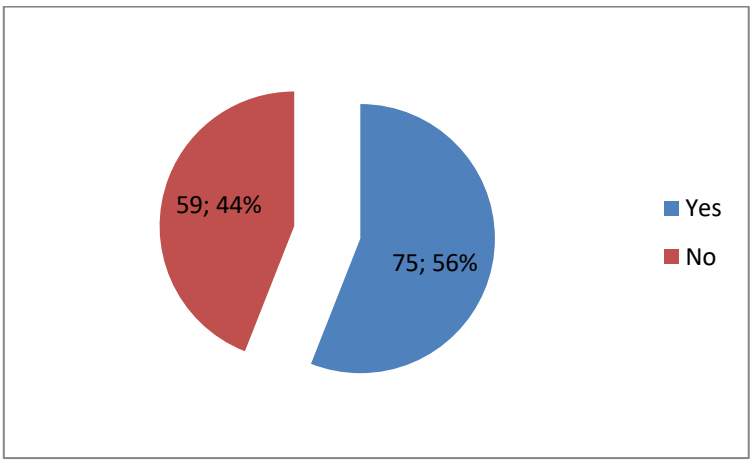

Figure 9: Do you consider the regulations for online-shopping to be good enough?

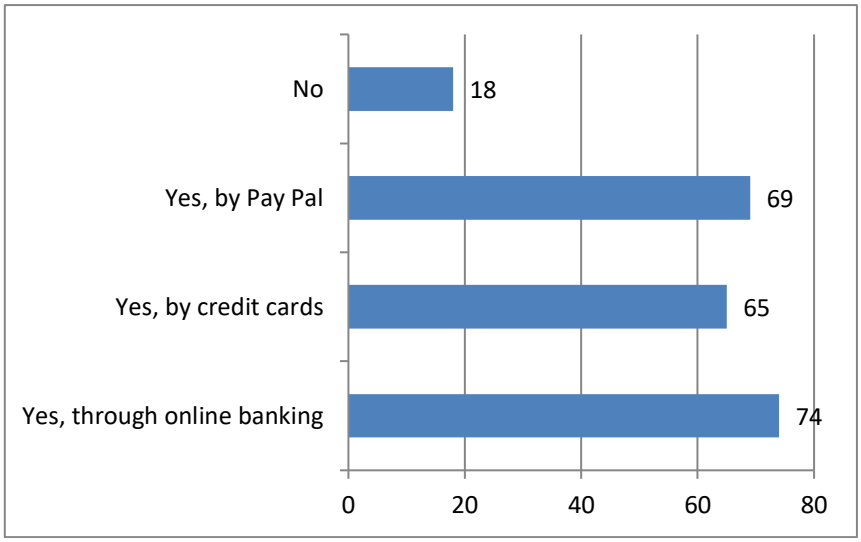

Figure 10: Do you make payments (shopping, money transfers) over the Internet? (Multiple choice question)

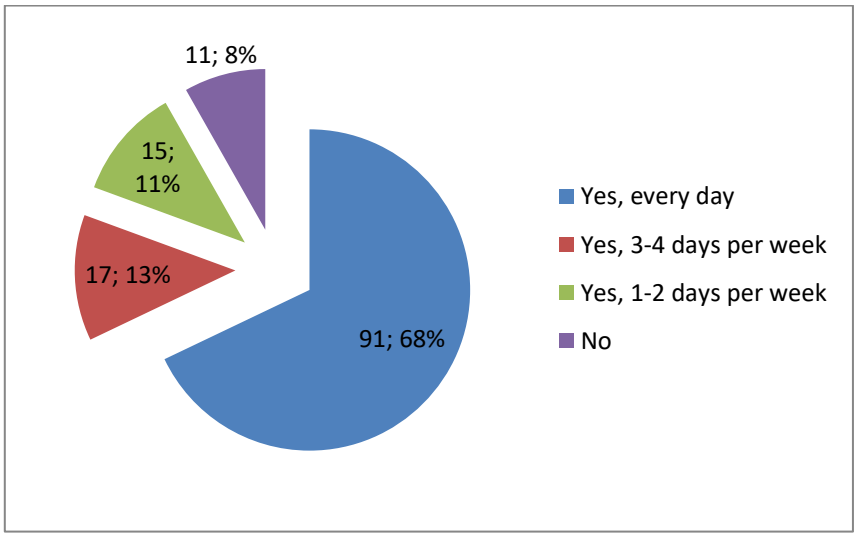

Figure 11: Do you use the Internet to perform your everyday duties (job related activities)?

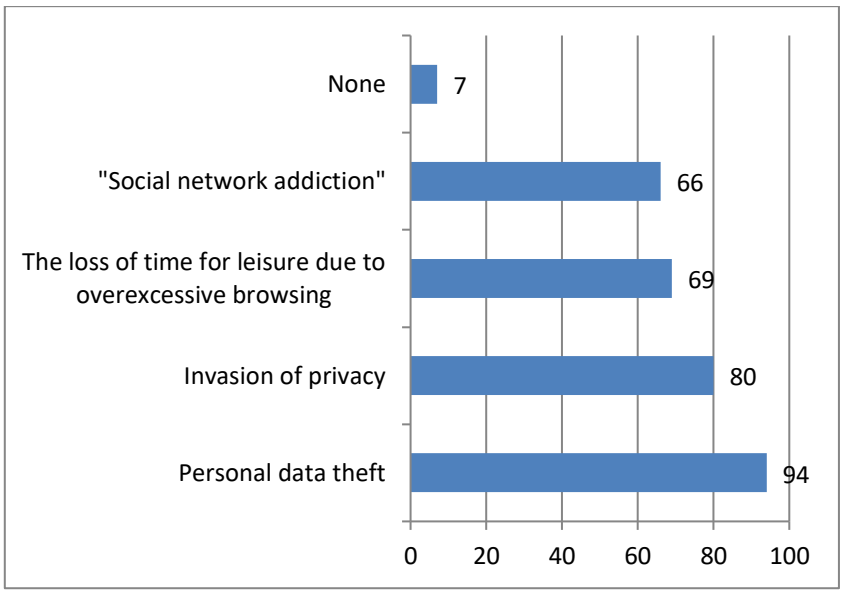

Figure 12: What are the risks of the Internet use? (Multiple choice question)

After the second set of questions, the third section of the questionnaire was focused on the importance of the Internet and social networks in gathering information and forming of the public opinion:

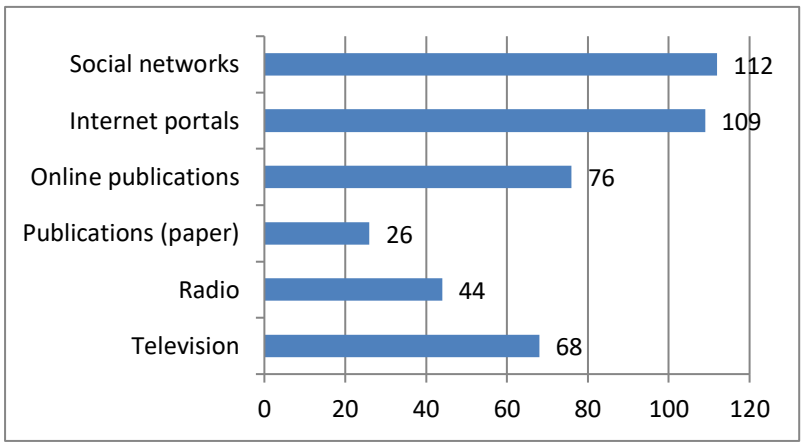

Figure 13: Which sources of information do you use? (Multiple choice question)

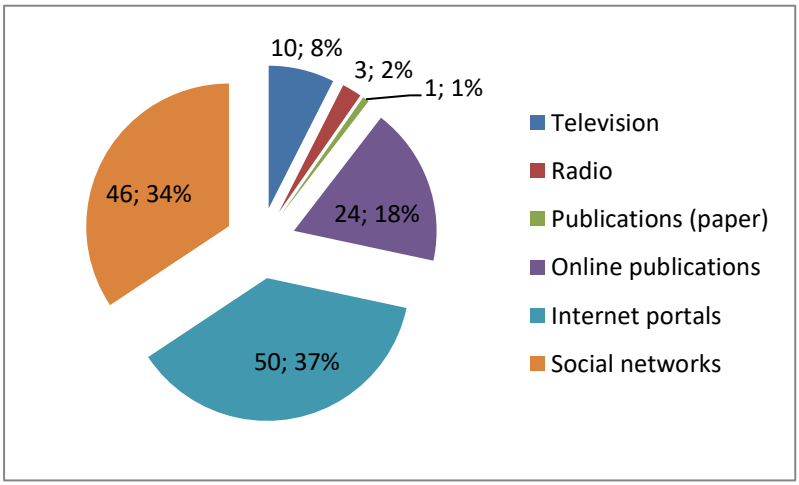

Figure 14: Which source of information do you use the most?

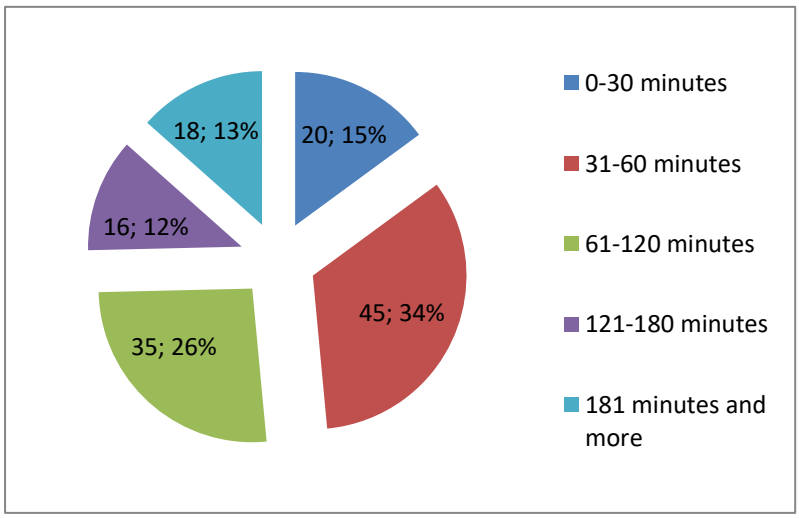

Figure 15: How much time (daily) do you spend on the Internet informing yourself?

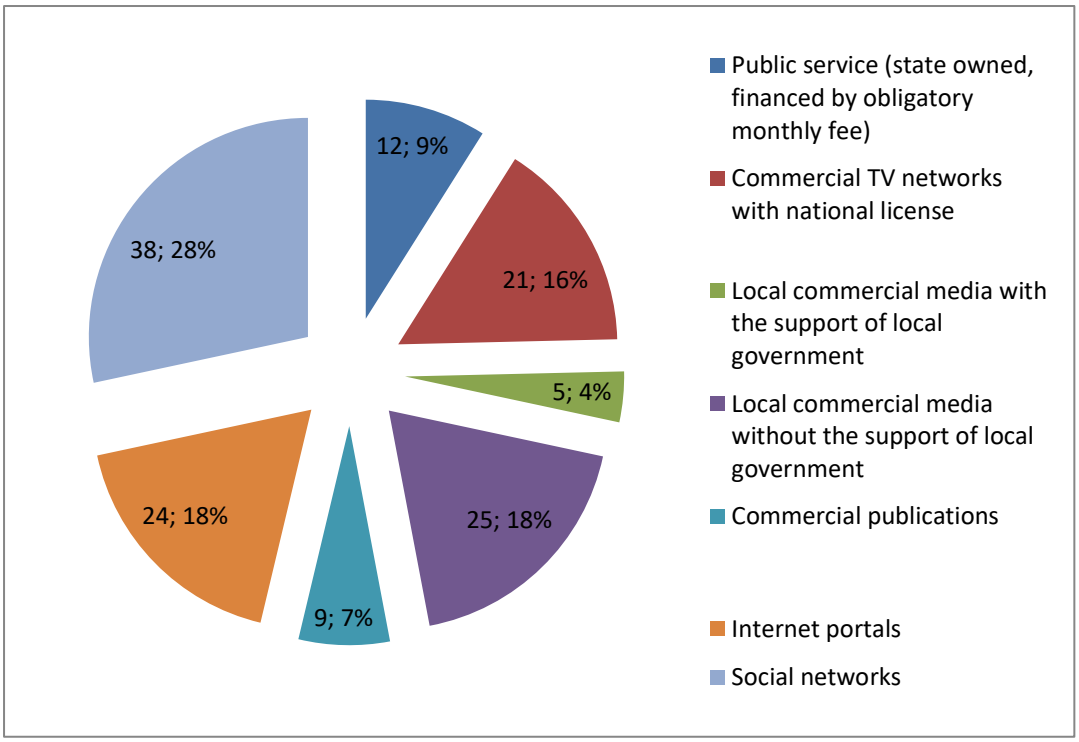

Figure 16: Which source of information do you consider least biased?

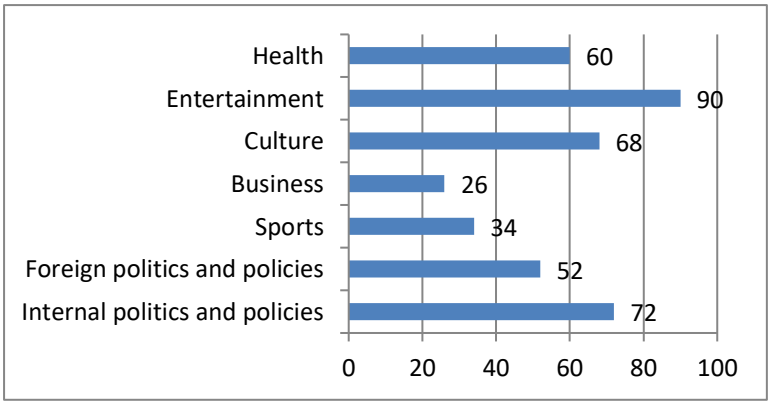

Figure 17: On which topics do you inform yourself the most? (Multiple choice question)

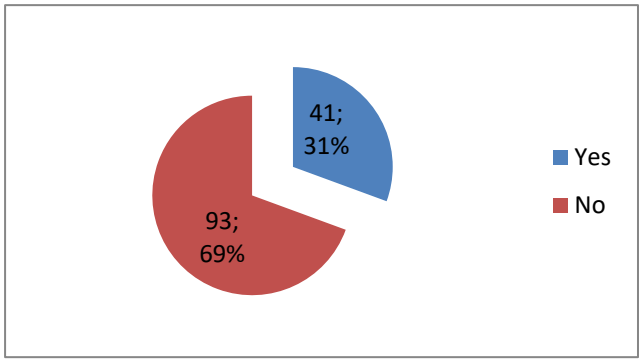

Figure 18: Do you use the opportunity to actively participate in the Internet portals and/or forums?

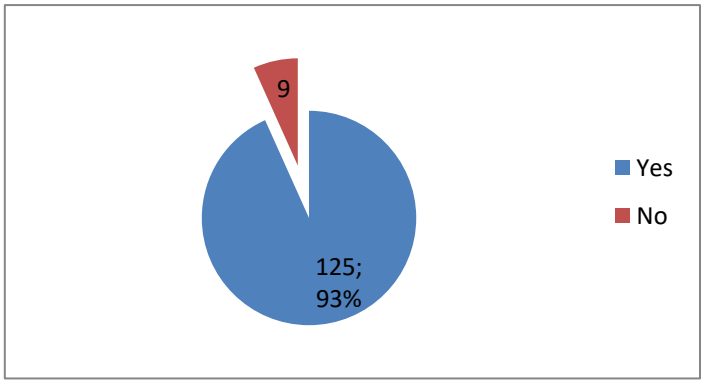

Figure 19: Do you use social networks?

4. CONCLUSION

We conclude that, despite their clearly shown ubiquity and importance, the Internet and social networks, still have a lot of space for spreading, especially among the middle aged and elderly population. We also conclude that online shopping has become ubiquitous among the younger population that uses social networks and informs itself mostly over the internet portals and social networks. There is a clear generation gap among our responders, hence the people of over 45 years of age were mostly not reached or declined to answer, and considering that the questionnaire was mainly shared over Facebook, confirming that the majority of the people using Facebook are younger than the average of population in Croatia (the average is about 42 years of age). Nevertheless, the power of the Internet should not be underestimated, but used wisely. The social network community, or to put it simply "Facebook community" shares certain habits and patterns of behavior when it comes to online shopping (the majority uses it), selling goods and services over the Internet, making payments over the Internet (the overwhelming majority is making payments of different types over the Internet), and informing themselves primarily over the internet portals and social networks. Due to the fact that social networks, Facebook particularly, enable rapid permeability, reaching hundreds of thousands or millions of users through sharing, as well as enabling two-sided communication i.e. feedbacks from users in real time, it is difficult to imagine that any significant company or institution that is in any ratio dependent on the market, can afford itself not to be present and active on social networks. Social networks community trusts the internet portals and social networks the most, considering them to be least biased when compared "traditional media", and publications, whether in paper or online form. Television and radio stations are also not trusted much by the social network community, especially if these are financed and/or controlled by the national or local government.

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NEW CHALLENGES FOR TOURISM MANAGEMENT AND MARKETING - ECOTOURISM IN ROMANIA

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ABSTRACT

Romania in the post-Communist era has undergone a period of "development frenzy," which has been forced to slow down due to the economic decline in recent years. "Global financial crisis may have been the best thing that happened to ecotourism in Romania," said the ones from the Association of Ecotourism in Romania (AER). If uncontrolled development was allowed to continue, the country would have lost the key driving force of ecotourism in many of its rural destinations - natural and cultural heritage. Those who have been involved in ecotourism, believing in its potential even when they were a few, are today celebrating the success of ecotourism – led by AER and its members and partners around the entire country. And indeed they have much to celebrate, though at the same time they also recognize that there's still a lot of work to continue. In the small Eastern European country of Romania, important decisions were being made, locally and nationally, that will impact the direction of the country's economy in the coming years. Conservation is of course, an important part of ecotourism, and therefore parks and protected areas play a critical role in Romania's approach to developing and promoting ecotourism. AER, which started initially as a local project focusing on wildlife protection and awareness raising through rural tourism, has since successfully developed projects and partnerships at the local and national levels, involving associations, NGOs, government projects and tourism businesses. This paper will highlight the problems and challenges faced by those entrepreneurs who have had the chance to practice ecotourism. From this point of view I have analyzed the criteria for the ecotourism certification system and the implementation modalities in Romania. I also propose a sustainable management plan.

Keywords: *AER, Ecotourism, Heritage, Romania, Tourism management*

1. INTRODUCTION

The Ecotourism Association of Romania (AER) brings together in an innovative manner the public and private sectors in a partnership for nature conservation and the development of sustainable tourism. EAR contributes to improving the quality of eco-tourism services and promotes nature as an essential element of Romania's image as a tourist destination. The AER aims to improve the quality of ecotourism services and to develop the infrastructure of ecotourism destinations, to contribute to nature conservation and sustainable development in Romania (www.eco-romania.ro).

1.1. The definition of ecotourism in the AER assent

Ecotourism is a form of tourism where the main motivation of the tourist is to observe and appreciate the nature and local traditions related to nature and which have to meet the following conditions:

- conserving and protecting nature;
- educational character, respect for nature - awareness of tourists and local communities;
- the use of local human resources;
- negative impact on the natural and socio-cultural environment.

(Adopted by AER according to the established definition of the World Tourism Organization - www.eco-romania.ro). Ecotourism is basically a responsible tourism. Responsible tourism is a different approach to traveling and spending leisure time, as well as a different approach to providing tourist services (Cretu, 2012, p. 89). Ecotourism, in the purest sense, wants to have a minimal impact on the local environment and culture, and at the same time it generates income, jobs for the local community and contributes to the preservation of local ecosystems (Amin, 1994, p. 89).

Some of the principles of responsible tourism are:

- Minimizing the negative economic, environmental and social impact of tourism;
- Generating increased economic benefits for locals and improving the quality of local community life and working conditions;
- Involve local people in decisions that affect their lives and the future development of the area;
- A positive contribution to the preservation of local natural and cultural heritage;
- Providing more enjoyable experiences to tourists through a better connection between them and local realities and facilitating tourists' understanding of local cultural, social and environmental issues (www.padis.ro).

AER Ecotourism Certification System adapts international experience to the Romanian context. It was developed in accordance with the Ecotourism Accreditation Program (NAAP is the first ecotourism accreditation system) and Nature's Best of the Swedish Ecotourism Association (the first Nordic ecotourism accreditation scheme) to be developed by the Australian Ecotourism Association (Creţu, Stefan, 2015).

The Ecotourism Certification System applies to two different categories:

- ecotourism programs offered by tour operators or guides (maximum 15 participants);
- small guesthouses in rural and natural areas (maximum 25 rooms).

The AER has identified a number of benefits that may result from the implementation of the Certification System, such as:

- allows customers to better identify those products that can provide amazing experiences about nature and rural culture;
- contributes to increasing the level of confidence in ecotourism products in Romania on the international market;
- becomes a marketing tool for tour operators and property owners;
- guarantees a higher level of service quality;
- contributes actively to nature conservation and sustainable local development;
- supports local administrations in protected areas in developing tourism with minimal impact;
- provides a platform for joint activities between the entrepreneurial sector and nature conservation organizations (www.asociatiaaer.ro).

2. CHAPTER. THE ECOTOURISM PRINCIPLES

These principles are endorsed and promoted by the Association of Ecotourism in Romania (AER) and are based on two international models: Nature and Ecotourism Accreditation Program developed by the Ecotourism Association of Australia and Nature's Best, the accreditation system promoted by the Ecotourism Association from Sweden.

From the ERA perspective, these principles need to be put into practice by both eco-tourism developers and those planning to develop an ecotourism-based area.

2.1. Focusing on natural areas

Ecotourism focuses on direct and personal experience in nature, it is developed within nature and is based on its use, its geomorphological, biological, physical and cultural characteristics. Therefore, the focus on the natural area is essential in the planning, development and management of ecotourism (Honţuş, 2005, p. 64).

2.2. Interpretation of ecotourism product

Ecotourism offers opportunities for experiences in nature that lead to a better understanding, appreciation and joy of discovering and protecting traditional local nature and culture for both visitors and the local community. Ecotourism products attract those tourists who want to interact with the natural environment and, in varying degrees, want to widen the level of knowledge, understanding, appreciation and pleasure (Pacciani, 2011, p. 112). Those who develop or coordinate ecotourism activities must provide an appropriate level of understanding of the natural and cultural values of the areas visited, usually by using suitably qualified guides and providing accurate information both before and during the experience (Cretu, 2013, p. 54). The level and type of the performance is planned, designed and offered in such a way as to meet the client's interests, needs and expectations, including a wide range of possibilities for both personal and non-personal interpretation. At the same time, at destination level and ecotourism products, it is important to create the opportunity for local community members to have access to the information and interpretation provided within the ecotourism program developed in the area (Bran, 2007, p. 102).

2.3. The principle of sustainability from the perspective of protecting the natural environment

Ecotourism activities and their planning must provide best practices of tourism and planning in terms of nature conservation and sustainable development. Tourism activity must be planned and run in such a way as to reduce the impact on nature (Cooper, Fletcher, 2008). The ecotourism product is conducted in such a way as to preserve and enhance the natural and cultural environment in which it is carried out, by recognizing and applying the practices characteristic of sustainable tourism.

2.4. Contribution to nature conservation

Ecotourism positively contributes to the preservation of natural areas. Ecotourism involves participating in the conservation of the natural areas visited, providing constructive ways for good management and conservation of these natural areas (eg providing financial support for rehabilitation of natural areas, waste collection or contribution to conservation organizations).

2.5. Constructive contribution to the development of local communities

Ecotourism provides sustainable contributions to the development of local communities. The local community is often an integral part of the ecotourism product. The benefits of ecotourism must also come back largely to local communities. Local benefits can come from the use of local guides, the purchase of local goods and services, and the use of local facilities (Neacsu, 2001, p. 73). Ecotourism activities and their planning should ensure a reduction in the negative impact on the local community and their lifestyle, while providing constructive long-term contributions to these communities.

Consequently, ecotourism must also highlight the cultural component of the visited area and contribute to the preservation of this component (Bran, 2005, p. 78).

2.6. The satisfaction of tourists

Ecotourism meets the expectations of tourists. In the development of ecotourism products, it must be taken into account that, in general, potential tourists in this field have a high level of education and expectations (Nistoreanu, 2003, p. 122). Thus, the degree of satisfaction with the ecotourism product is essential, the experience offered by fulfilling or even exceeding the expectations of the tourists.

2.7. The right marketing

It aims to achieve a fair marketing that leads to realistic expectations. Ecotourism marketing provides customers with complete and responsible information that leads to increased respect for the natural and cultural environment of the visited areas and the satisfaction of tourists.

3. CHAPTER. THE CERTIFICATION SYSTEM IN ECOTOURISM

The ecotourism certification system applies to two categories:

- Ecotourism programs provided by tour operators or tourist guides (maximum 15 participants);
- Small guesthouses located in rural and natural areas (maximum 25 rooms) (Tindeche, 2004, p. 56).

As regards pensions, the ecotourism certification system implies the fulfilment of the general principles and then the criteria that are checked and marked on the site (Table 1).

Table 1.The Certification System in Ecotourism
(Source: http://eco-romania.ro - The Romanian Ecotourism Association)

GENERAL PRINCIPLES	CRITERIA
Principles of management supported by the guest house	The criterion for demonstrating a sustained / sustainable and efficient management of the guest house
	Criteria for implementing a sustained management system
	Criteria for compliance with relevant national and international laws
	Continuous training of staff
Product focused principles	Concentration criteria on natural areas
	Criterion of ecotourism product interpretation
	Durability criterion visited from the perspective of natural habitat protection
	Conservation contribution criterion
	The criterion of constructive contribution to the development of local communities
	Criteria for sensitivity to culture and local traditions
	Satisfaction criterion
	Appropriate Marketing criterion

4. SUSTAINED MANAGEMENT PLAN (PMD) – CONTENT PROPOSAL

Vision - The guesthouse offers tourist services with a minimal impact on nature and aims to increase the quality of life in the community to which it belongs by proper behaviour towards employees and the promotion of products, culture and local traditions. (The guesthouse is part of PMD. The guesthouse has a vision that is in accordance with the principles of ecotourism.)

Figure 1. Elements of the sustained management plan (Creţu, Stefan, 2015)

Goals:

- Conservation of natural resources and reduction of the impact on the environment;
- Stimulate local community development by engaging local community staff and promoting local traditions and culture;
- Providing safe and good quality services;
- Employees and tourists not only benefit from the trust in the jobs but also from those in their activities.

A. Conservation of natural resources and reduction of environmental impact can be achieved by reducing water consumption, reducing waste and garbage, reducing energy consumption, reducing the impact on air, soil and water.

- For a reduction in water consumption, we recommend the following: use of butterfly valves and low flow shower enclosures; toilets have containers with controllable water flow; showers must be installed in bathrooms; using a small amount of water for watering plants (water systems or watering systems, especially in the morning or in the evenings); collecting rainwater and using it for various activities; adopting other measures to reduce the amount of waste water; displaying a written warning to reduce water consumption; encouraging customers to use towels over several days; connecting all tourist facilities to a drainage system or introducing a system for collecting, storing and treating water or a wastewater disposal system in a water treatment plant.
- Decreasing the amount of waste and garbage: purchase materials so they avoid excessive packets; try as many possibilities as possible to use biodegradable packages; only use containers that are reusable or biodegradable (eg glasses); Use disposable items (utensils or containers) only in special situations, maximum one / person / stay; to encourage both employees and tourists to participate in waste collection, recycling and waste reduction programs; to collect and dispose of all the garbage observed; a compost of organic waste faces; organization and subsidization (funding, work, etc.).

- Reduction of energy consumption: Use fluorescent light above 90% instead of incandescent light; rooms to be naturally ventilated; during daylight use only natural light (as much as possible); use of solar energy; heat waste through windows and doors is diminished by a suitable sealing, the use of double windows and strip insulation; a trained employee is delegated to energy efficiency; heat is produced and distributed through centralized installations; energy equipment belongs to the "energy-efficient" energy class; at least 50% of the building is made of wood or other natural materials; tours, itineraries and schedules are planned so that travel time and distances are diminished (including avoiding crowded areas and peak hours); encouraging tourists to use fuel efficient transport (eg providing information on public transport, providing bicycles for sightseeing); encourage employees to walk, cycle or public transport to get to work; all vehicles are well-maintained (technical control to date); when choosing and / or buying vehicles, we will make fuel-efficient choices; we will use vehicles that do not consume more than 10 liters / 100 km.
- Reduction of impact on air, ground and water: improvements and tourist activities (eg buildings, paths) do not lead to land remodelling, river changes, complete vegetation termination, etc. we will use keys, underground, barriers and other signs to maintain traffic in designated areas for different categories of users; waste is not stored in any other than specially designated places; (a) transport operations, concerts, music, equipment and mechanical installations) do not significantly exceed the background noise of the area; service and maintenance units that produce noise are located away from quiet areas or soundproofed.

B. Stimulating the development of the local community by hiring personnel from the local communities and by promoting local traditions and culture.
Stimulating the development of the local community is done by the following actions:

- The use of local tourist guides' services for showing off the significant local tourist attractions and for systematically training other tourist guides;
- The use of other natural persons' services on a local level (e.g. kitchen staff, transport);
- Encouraging the purchase of local products and souvenirs;
- Using other local services: guesthouses; renting bikes, carts etc;
- Offering the students/youngsters that live in the area the possibility for practising, in order to gain work experience in the ecotourism field (Tigu, 2001, p. 98).

Promoting local traditions and culture:

- Informing tourists about the behaviour code that needs to be adopted inward the local community;
- Showing tourists the traditions of the area, encouraging the participation in traditional festivals;
- Serving specific food for the respective area especially;
- Buying local products as much as possible: souvenirs, food drinks, etc. (Beciu, 2011)

C. Providing secure and good quality services: we have carried out a risk analysis that comprises the activities impacting on the environment and on the safety of work, as well as identifying the measures to counteract these risks; in unforeseen situations, there is a person responsible for removing the problem as soon as possible; tourists have access to a list of contact persons in case of emergencies that comprises: the fire fighting department; the administration of the natural habitat, mountain rescue, hospital and others; all the company's employees wear the "safety equipment" in cases when it is required; the correct use of the equipment is explained by the company's manager or by specialized companies/persons; at least one company employee is trained for giving the first aid and takes part in the activities that involve giving the first aid (Nistoreanu, 2010, p. 87).

D. Employees and tourists benefit both of the confidence in their jobs, as well as of the activities that they undertake: the company the all employees have insurances in conformity with the type of activities they undertake; participants in all activities get clear information about the insurances included in the company's product.

5. CONCLUSION

The present study has demonstrated the ecotourism certification procedure as well as the criteria that must be fulfilled by accommodation units willing to adhere to this type of modern tourism. In our country, ecotourism certification system is used by Romanian Ecotourism Association (AER), which adapts existing international experience in the context of Romania. A key element of the certification process is the development of a sustained management plan that meets all the certification requirements. This study showed a sustainable management plan as a model that can be used by managers or owners of the accommodation facilities seeking certification in tourism. Hostels implementing certification for tourism are presented with a number of benefits, such as: it allows customers to better identify those products that can offer amazing experiences related to nature and rural culture; contributes to increasing the level of confidence in Romanian ecotourism products on the international market; becomes a marketing tool for tournament and boarding house owners; guarantees a higher level of service quality; contributes actively to nature conservation and sustainable local development; supports local administrations in protected areas by developing a form of tourism with minimal impact; provides a platform for joint activities between the entrepreneurial sector and nature conservation organizations

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ANALYSIS OF THE OPPORTUNITIES AND THREATS OF INNOVATIVE SMES IN THE EU

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ABSTRACT
During economic crises, but especially in the post-crisis period, a particular role is played by the strategies adopted by the governments of the European countries regarding the activity of the SMEs that represent the backbone of the EU economy28. In 2016, nearly 23 million SMEs generated €3.9 trillion in value added and employed 90 million people. In 2016, they accounted for two-thirds of employment in the EU28 and slightly less than three-fifths of the EU-28value added in the non-financial business sector.Most SMEs are micro-enterprises with fewer than 10 employees - such very small enterprises account for almost 93% of all non-financial enterprises. The recent social changes at European level (BREXIT) draw attention to the behavior of entrepreneurs who have resisted the market due to innovative activities (new products, advanced technologies, new management and marketing approaches, modernization of the information system, intellectual capital), but also to those who have created a new business after their previous business went bankrupt or was voluntarily closed because it was not profitable. This paper will highlight the problems and challenges faced by these re-starters, namely those entrepreneurs who have had a second chance. I will present an empirical analysis of the impact of the different features of a bankruptcy regime on entrepreneurship, as well as an empirical analysis of the impact of a large number of SMEs in the EU28 on EU-28 GDP. These analyzes were correlated with the EU 2014-2020 Financing Program and the Small Business Act, the main EU strategic documents that marked the major evolution of SMEs in Europe.
Keywords: *Analysis, Economic crises, Re-starters, SMEs*

1. INTRODUCTION

The economic crisis is forcing companies in general, especially SMEs, to look for effective and effective solutions to resist the market. These can be achieved if, during the last three years of activity, an SME has placed on the market a new product/service, different from what it has previously produced or acquired a technology different from the one it used previously. In the current economy based on competition and creativity, only innovative SMEs with creative employees who will create and add value will resist the market (Tidd, 2013, pp. 18-25).
According to the data provided by the Annual Report on European SMEs 2016/2017, the definition of SMEs is based on 3 elements (Employees, Turnover and Balance sheet total), which are specified according to the type of company (Micro, Small, Medium sized) in table no.1:

Table 1: Characteristics of SMEs (Annual Report on European SMEs 2016-2017, p.11)

Company Type	Employees	Turnover (€ million)	Balance sheet total (€ million)
Micro	< 10	< 2	< 2
Small	< 50	< 10	< 10
Medium - sized	< 250	< 50	< 43

In 2016, the number of SMEs at EU-28 was around 23,849,000 (99.8% of total enterprises, respectively SMEs and large enterprises), having a number of employees of 93,049,000 (66.6% of all employees) an added value of EUR 4.030 trillion (56.8%), according to data provided by Eurostat on 30 June 2017. The breakdown by type of SMEs at EU-28 non-financial business sector is shown in table no. 2:

Table 2: Comparative Analysis of SMEs and Large Enterprises in EU-28 (Eurostat, 2017)

Indicators/ Company Type (%)	**Micro**	**%**	**Small**	**%**	**Medium**	**%**	**SME**	**%**	**Large**	**%**	**TOTAL**
Number of enterprises (Thousands)	22.232	93,0	1.392	5,8	225	0,9	23.849	99,8	45	0,2	23.894
Employees (Thousands)	41.669	29,8	27.982	20,0	23.398	16,7	93.049	66,6	46.665	33,4	139.714
Value Added (Eur Trillion)	1.482	20,9	1.260	17,8	1.288	18,2	4.030	56,8	3.065	43,2	7.095

Analyzing the data in Table 2, 99.8% of the total number of firms are SMEs and only 0.2% are large firms, 66.6% are employed in SMEs and 33.4% are employees in large enterprises, adding 56.8% to SMEs, and large enterprises 43.2%. In 2016, at the EU-28 level, the largest share in total SMEs was held by micro enterprises (93%), followed by small and medium ones as shown in Chart no. 1

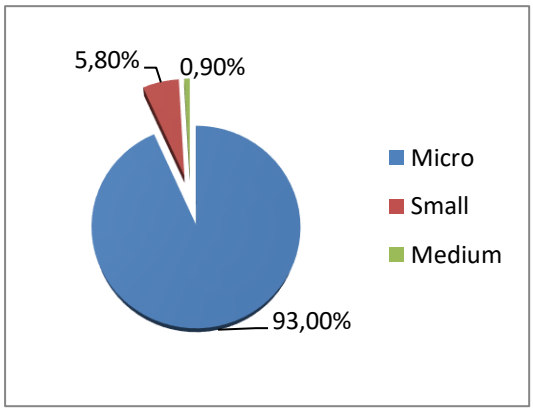

Chart no. 1 Distribution of SMEs according to the number of enterprises (Eurostat, 2017)

According to data provided by Eurostat in 2016, the share of employees working in SMEs was 66.6%, compared to the number of those working in large enterprises of 33.4%. Most employees work in micro-enterprises (chart 2) and added a value of 20.9% of 56.8% (chart no.3) the value added to SMEs.

Figure following on the next page

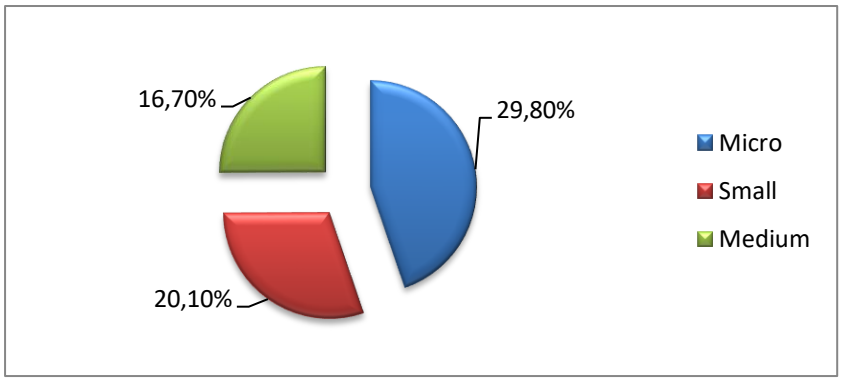

Chart no. 2 Distribution of SMEs according to the number of employees in 2016 (Eurostat, 2017)

Large enterprises contributed less to the value added in 2016 compared to SMEs, respectively 43.2% versus 56.8%, this percentage being broken down by type of enterprises in Chart no.3. In 2016 micro-enterprises were ranked best in the SME category at EU-28 level in terms of the three indicators: number of enterprises, employees and added value.

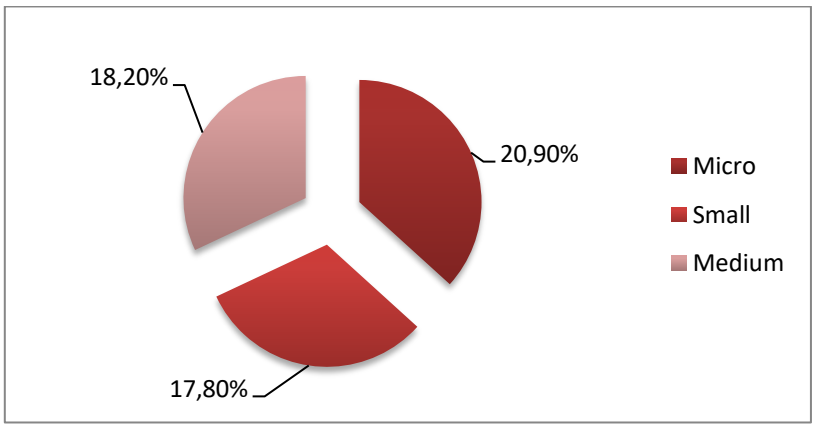

Chart no. 3 Distribution of SMEs by Value Added in 2016 (Eurostat, 2017)

Among the EU Member States, where SMEs play the most important economic role, are Cyprus and Greece. In these countries, more than 80% of the total employed population is active in SMEs and creates over 80% of added value (Annual Report on European SMEs 2016/2017, p. 12).

2. BUSINESS BANKRUPTCIES

Following the economic crisis of 2008-2009, many SMEs closed their activity, some voluntarily following the normal decision of the owners, others were forced to liquidate or went bankrupt (Robu, V, Creţu, R, F, Curea, C.Ş., 2008, p. 3.054) (Creţu, R.C., Creţu, R.F., 2010, p. 167). Very few EU member states reported specific bankruptcy data for SMEs in 2009-2014. The Annual Report on European SME 2014-2015 found that in recent years, young SMEs have created jobs. The EU needs several young firms to create jobs. There are currently no major differences between the EU and the EU-US in terms of creating a new firm. Start-ups are key contributors to innovation and the growth dynamics of the EU economy. However, many young businesses do not succeed in the early years of life, and the barriers to starting again decrease the potential gains that a strong start-up culture can generate (Achim, 2017, p. 71). Public policies that support more start-up second-round dynamism will help improve the environment for newly established businesses and strengthen the overall performance of SME job creation.

According to the EU Annual Reports 2009-2014, "every year in the EU, 200,000 firms went bankrupt on average, 99% of them being SMEs". Here are a few hypotheses (Table 3):

Table no.3: Hypotheses (personal adaptation after the Annual Report on European SMEs 2015-2016, pp.55)

Hypotheses	Content hypotheses	Effects
1	If 50% of bankruptcy owners resumed a new business, if it were easier to do so, around 99,000 jobs were created each year for the period 2009-2014.	99.000 jobs
2	In 2014, on average, in the EU-28, each SME if it created about 4 jobs, according to the Annual Report 2015-2016, there is an additional workforce of approximately 396,000.	396.000 jobs
3	On average, in the EU28, new SMEs created only 2 jobs, so about 198,000 jobs were created. A number of jobs could be created between 198,000 and 396,000.	between 198 000 and 396 000 jobs
4	If at 5 years each SME would have created 3 jobs, EU-level28 would have created 594,000 jobs, 1,188,000 jobs, 2,376,000 jobs	594.000 jobs, 1.188.000 jobs, 2.376.000 jobs

It should be noted that the EU member states have felt the top of the crisis differently, starting with 2009, several states (6), another 3 were added in 2010, another 2 states were affected by 2012, 9 Member States in 2013 EU, and in 2014 the effect of the crisis still felt in 16 of the EU states (Chart no. 4):

Chart no. 4 The peak of the economic crisis in the EU countries (personal adaptation after Annual Report on European 2015-2016, pp.53)

Armor and Cumming performs a 2008 academic study focused on Europe and a few non-European countries (Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Holland, Spain, Sweden) and covers the period 1990 to 2005 (Şerban, E.C., Creţu, R.F, 2009, p.275). The empirical analysis of the Annual Report on SMEs in 2016 updates the data by 2015 and covers all member states EU28. (Annual Report on European SMEs 2016, pp. 303-350).

The results of the empirical analysis for the annual report 2016 on the characteristics of the national bankruptcy regime are presented in chart no. 5:

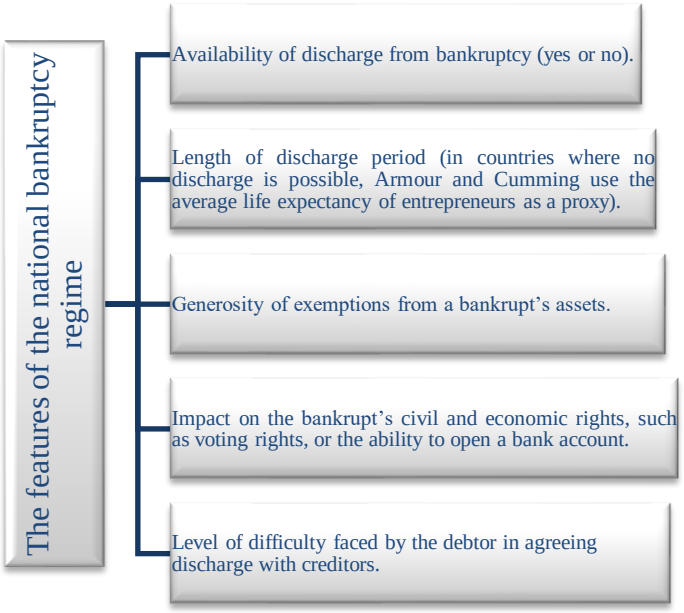

Chart no. 5 The features of the national bankruptcy regime
(source: Annual Report on European 2015-2016, pp.64)

In addition, (Annual Report on European SMEs 2016, p. 64) Armour and Cumming take account of the following factors which may also influence the level of entrepreneurship:

- Minimum capital requirements for creating a limited liability company - the lower the requirements, the less incentive there is to create a business which is not incorporated and the more incentive there is to become self-employed.
- Real GDP growth – the higher (lower) the rate of GDP growth is, the lower (higher) the incentives are for starting a business, because the labour market provides enough opportunities.
- Real R&D growth – strong growth in R&D is likely to stimulate entrepreneurship as more funding is expected to be available for start-ups as well.
- Stock market growth - strong growth in the stock market is expected to stimulate entrepreneurship, because it becomes easier to bring new companies to the stock market (IPOs).
- Income taxes – high taxes on wages may stimulate entrepreneurship because there is an incentive to earn non-wage income such as dividends.

3. RE-STARTERS

Fair entrepreneurs have a second chance to start a business, according to the second principle of the Small Business Act for Europe (SBA) adopted in 2008. This principle states that Member States should ensure that honest entrepreneurs who have rapidly faced with bankruptcy to obtain a second chance by facilitating the exchange of good practices between Member States, namely:

- provide entrepreneurs with a new start through public information campaigns;
- complete all legal procedures for winding up the business if it is not a fraudulent business within one year;
- treat people who return to business on an equal footing with those already in place (Anghel, 2002, p. 28).

3.1. Econometric analysis

Econometric results (Annual Report SME Recovery Continues, p. 64) indicates that reducing the number of years of download could increase the potential for new businesses across the EU. two effects in the study are estimated:

- the impact of reducing the current level of discharge years to the level suggested by Second Chance (i.e. 3 years), and
- also the impact of reducing the current level of discharge years even further to one year.

As shown in the Special Study companion document (Annual Report on European SMEs 2015/2016 – SME Recovery Continues, p. 65), some countries already had in 2015 a discharge period of less than 3 years and, in some instances, the period was even shorter: one year or less. This is the case of Belgium (less than 1), Bulgaria (1), Denmark (3), Estonia (3), France (3), Ireland (3), Latvia (3), the Netherlands (3), Poland (1), Slovakia (3) and the United Kingdom (1). In contrast, in a number of countries, bankrupt entrepreneurs have no possibility to shed eventually their bankrupt status (Cyprus, Greece, Hungary, Italy, Lithuania, Malta, Portugal and Romania) as no discharge exists (Crețu, R.F., Șerban, E,C. 2017). The econometric analysis (Armour and Cumming, 2008; referenced by Annual Report European SMEs 2015/2016 - Special study - Insolvencies and SMEs, p. 53) shows that the big years of discharge are an essential deterrent to entrepreneurship. The negative and statistically significant sign of the regression coefficient indicates that reducing download times could lead to an increase in the number of new businesses in the EU. The estimated coefficient (-0.0000176) in the new business model can quantify this change in order to project the potential growth of new businesses on the most recent per capita data (Ciocănel, Robu, 2010). Table no. 4 presents the latest data on new registered businesses as well as the latest years for discharge. In addition, the table also shows the difference between the current level of the years of discharge and the number of years proposed by the second change (3 years) and the gap between the current year of the discharge year and a potential reduction less than a year. Some countries were already at the border in 2015, meaning they already have a download period of less than 3 years or even less than a year. This is the case for Belgium (0), Bulgaria (1), Denmark (3), Estonia (3), France (3), Ireland (3), Latvia (3), Slovakia (3) and the United Kingdom (1). In these countries, the improvement can only be marginal and could be achieved by further reducing the download time. For an economy like France, the decline in the number of years from 3 to less than one year would increase new businesses by 4% (Crețu, R.F., 2017). At the other end of the analysis there are countries such as Cyprus, Greece, Hungary, Italy, Lithuania, Malta, Portugal and Romania, where there is no discharge. These Member States could greatly benefit from the implementation of the second (maximum 3 years). For example, the number of new businesses each year in Greece will double.

Table following on the next page

Table no. 4 Data on newly registered enterprises as well as on the last years for discharge (Annual Report European SMEs 2015/2016 – Special study – Insolvencies and SMEs the role of Second Chance, p.55)

Country	New businesses (latest year available)	Years to dischange (2015)	Differentianl from suggested Second Chance years (3)	Differentian from minimum years (0)	Potential increase in number of new businesses due to implementing Second Chance (i.e.3.years)	% increase	Potential increase in number of new businesse due to implementing discarge in a year	% increase
Austria	4181	7	-4	-7	601	14%	902	22%
Belgium	14897	0	3	0	n.a.	n.a	n.a.	n
Bulgaria	42613	1	2	-1	n.a.	n.a	127	0%
Croaţia	13073	5	-2	-5	149	1%	298	2%
Cyprus	11169	38	-35	-38	525	5%	555	5%
Czech Republic	24366	5	-2	-5	370	2%	739	3%
Danemark	15806	3	0	-3	n.a.	n.a	199	1%
Estonia	13867	3	0	-3	n.a.	n.a	46	0%
Finlanda	11961	5	-2	-5	192	2%	385	3%
France	94927	3	0	-3	n.a.	n.a	2330	2%
Germany	68526	6	-3	-6	4256	6%	7093	10%
Greece	5761	41	-38	-41	3555	62%	3742	65%
Hungary	24490	38	-35	-38	6078	25%	6425	26%
Ireland	17601	3	0	-3	n.a.	n.a	162	1%
Italy	91853	38	-35	-38	37453	41%	39593	43%
Latvia	13991	3	0	-3	n.a.	n.a	70	1%
Lithuania	8481	34,7	-31,7	-34,7	1634	19%	1737	20%
Luxembourg	2224	5	-2	-5	19	1%	37	2%
Malta	5062	39	-36	-39	271	5%	286	6%
Netherlands	58900	3	0	-3	n.a.	n.a	595	1%
Poland	14434	1	2	-1	n.a.	n.a	n.a.	n.a
Portugal	31860	41,3	-38,3	-41,3	7010	22%	7377	23%
Romania	56381	34	-31	-34	10857	19%	11558	20%
Slovakia	12027	3	0	-3	n.a.	n.a	191	2%
Slovenia	6243	5	-2	-5	73	1%	145	2%
Spain	91544	5	-2	-5	1637	2%	3274	4%
Sweden	42063	5	-2	-5	341	1%	683	2%
United Kingdom	537658	1	2	-1	n.a.	n.a	n.a.	n.a

3.2. Case Study – Romania

Romania is in the category of countries where there is no discharge, so it could greatly benefit from the implementation of the second chance at a maximum of 3 years (Bîrsan, Şuşu, 2013, p. 37). The number of new businesses can be estimated in the range (10,857-11558). The research method used was a questionnaire investigation of 1,096 companies, micro - 82,21%, small - 11,77% and medium - 6,02%, from all the development regions of Romania (8) respectively, the north-west region is 6.95%, north-east 6.23%, south-east 13.36%, southern 17.69%, southwest 10.38%, west 1.17%, center 9,30% and Bucharest 34.93%, sectors of activity (industry 22.29%, construction 8.21%, trade 34.03%, tourism 2.80%, transports 3.97%, services 28.70%) and age (set up for 5 years, between 5-10 years, 10-15 years, over 15 years and all forms of legal organization (limited liability companies 85.29%, 10.92% joint stock companies and other forms of organization 3,79). The structure of the sample by age is shown in table no.5:

Table no 5 Structure of the sample by age of SMEs (Niculescu, 2016, p.15)

Age of SMEs	**%**
Older than 15 years old	26,81
Established for 5 years	26,26
Established for 5-10 years	25,27
Established for 10-15 years	21,66
TOTAL	100

The sample of investigated SMEs is representative of Romania, in size and structure, providing the appropriate information support to the formulation of well-founded findings and conclusions. The profile of the Romanian entrepreneur (Niculescu, 2016, p. 30) is the following: mature person with economic and technical background, male, married, with children, graduate of a higher education, with an average 10 years of entrepreneurial experience, unique, which allocates more than 8 hours a day to the business and does not involve family members in the activities company.

Research results:

- The main business opportunities for small and medium-sized enterprises are: assimilation of new products (indicated in 52,19% of SMEs), growth in domestic demand (49,36%), penetration into new markets (49,18%), the realization of a business partnership (46.81%), the use of new technologies (38.41%), the obtaining of a grant (13.87%) and the increase of exports (13.78%)
- the difficulties most frequently faced by small and medium-sized firms are: bureaucracy (reported in 61.41% of SMEs), excessive taxation (54.74%), corruption (45.16%), excessive controls (44, 98%), unfair competition (40.33%), decrease in domestic demand, (36.31%), employment, training and retention of staff (26.37%), wage bill growth (25.54% 21.90%), imports of imported products (19.71%), delays in the receipt of invoices from private companies (19.62%), poor infrastructure quality (18.16%), high credit costs (15.9% , 24%) and the relative instability of the national currency (13.14%)
- Contextual elements with negative influence on the activities and performances of SMEs most frequently encountered in Romania (Niculescu, 2016, pp. 64-65) are the evolution of the legislative framework (in 45,80% of all investigated companies), corruption (29,20%), the global economic crisis (26.64%), excessive bureaucracy (26.64%), the policies of the Romanian banks towards companies (24.82%) and the insufficient capacity of the Government, Parliament, etc. to counteract the effects of the crisis (23.81%) .

4. CONCLUSION

SMEs are the engine of all economies of EU countries that resist economic crises, and even exceed them because of the innovative capacity of human capital and the financial efforts they make to meet the new challenges of product innovation, process, etc. The perceptions of entrepreneurs in Romania regarding the evolution of SMEs is that between October 2011 and March 2016, 36.32% of companies have reduced their businesses, 32.77% of enterprises operate on the same parameters, 19.93% of companies organizations have gone bankrupt or are in bankruptcy, and 10.98% of economic units have increased their activity. The number of economic units that have restricted their activity in Romania is in line with EU member states and responds to the conclusions of Armour and Cumming's 2008 research. This figure is higher among 5-10 year old companies (22.58 %), SMEs in the West (30.77%), micro-enterprises (21.53%), economic operators with other forms of legal organization (30.58%) and companies in the trade sector (24.20%). The number of organizations operating at the same parameters is higher among entities less than 5 years old (70.34%), North West economic units (74.23%), small enterprises (69.77%), Societies with Limited Liability (68.48%) and service companies (70.48%).

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NEW CHALLENGES IN TOURISM MANAGEMENT - IMPLEMENTATION OF THE ECOLOGICAL LABEL IN AGROTURISM

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ABSTRACT

The European Ecolabel for tourist accommodation services was created to reward accommodation and environmentally friendly tourists. It is a way of marking good environmental performance and providing quality assurance for tourists choosing a particular structure. The assignment criteria of the ecological label for tourist housing services are governed by the European Commission Decision no. 287/2003/CE regarding the establishment of ecologic criteria applicable for the assignment of ecologic label for community tourist housing services, published in the Official Journal of the European Communities (JOCE) no., L102/2003. Agro-tourism is defined by the tourists who travel to an unpolluted rural location, in a scenic area, completed by a period of leisure of at least 24 hours and by the consumption of specific food or non-food, completed by cohabitation and integration into rural society. This form of tourism comprises two major components: tourist activity and agricultural activity provided by the owner of the agro-turistical farm. The work we are proposing is the result of a study by universitary teachers, master students and PhD students from the management and agro-tourism specialty at the University of Agronomic Sciences and Veterinary Medicine of Bucharest. The study was carried out during 2007-2017 period, the target group consisting of 200 agrotourist hostels, members of EUROGITES: 25 from Hungary, members of the Association of Hungarian Rural and Agrotourism, 25 from Bulgaria, members of Bulgaria's Alternative Tourism Association and 150 from Romania, members of National Association of Ecological and Cultural Rural Tourism. The study looked at the possibility of implementing the ecolabel for accommodation services in the agro-tourism hostels in the three specified countries. Although in 2007 the implementation rate was low, the results of the year 2017 are encouraging to implement the Ecolabel in agro-tourism.

Keywords: *Agrotourism, Ecological label, Implementing, Tourism management*

1. INTRODUCTION

Agrotourism is defined by moving people to an unpolluted rural locality, set in a scenic area, completed by a stay of at least 24 hours and by the consumption of specific food and non-food, supplemented by cohabitation and integration in a rural society in all its complexity (Hontus, 2005, p. 23). This form of tourism comprises two major components: the actual tourist activity, materialized in accommodation, food related services, recreation (travel, fishing, equitation), other current services and, on the other hand, the economic activity (agricultural) the owner of the agro-farm (boarding house), which is involved in the primary production and processing of agro-food products in the household and their direct marketing to tourists or other commercial networks (Tindeche, 2004, p. 56). Agrotourism undoubtedly plays an important role in the overall metamorphosis of rural area, especially villages and small towns with a high degree of rurality and a valuable tourist potential (Brown, 2001, p. 98). Settlements with a long historical past, with architectural buildings typical of the region, with their habits, traditions and a way of life, attract tourists who want to know these aspects alive. (Buianu, 2001, p. 122). Agritourism is considered a subset of rural tourism (Phillip et al. 2010) which is based on the use of the resources present in the countryside (Cawley and Gillmor 2008; Hall et al. 2003; Roberts and

Hall 2001, p. 34) and finds its basis in the new models of consumption (Amin, 1994, p. 89) and enjoyment of rural areas (Ray, 2003). In any case, rural tourism is a complex and vastly differentiated phenomenon (Frochot, 2005) the effect of which depends on the characteristics of each individual territory and the manner in which the public and the private actors set up the relationships between tourism products and local resources (Pacciani, 2011, p. 112). Despite agritourism is not a new phenomenon, specific regulation for this tourism segment does not exist thus far in Europe. The development of this sector has been promoted by two EU regulations. EU regulations intended as methods for diversification of farm households in the rural economy and thus contributing to the rural area development. These EU directives are not able to carefully take into account the wide range of services provided by agritourism and do not direct any specific attention to their environmental performances. The assignment criteria of the ecological label for tourist housing services are governed by the European Commission Decision no. 287/2003/CE regarding the establishment of ecologic criteria applicable for the assignment of ecologic label for community tourist housing services, published in the Official Journal of the European Communities (JOCE) no., L102/2003.

2. MATERIAL AND METHOD

The work we are proposing is the result of a study by universitary teachers, master students and PhD students from the management and agro-tourism specialty at the University of Agronomic Sciences and Veterinary Medicine of Bucharest. The study was carried out during 2007-2017 period, the target group consisting of 200 agrotourist hostels, members of EUROGITES: 25 from Hungary, members of the Association of Hungarian Rural and Agrotourism, 25 from Bulgaria, members of Bulgaria's Alternative Tourism Association and 150 from Romania, members of National Association of Ecological and Cultural Rural Tourism. The study looked at the possibility of implementing the ecolabel for accommodation services in the agro-tourism hostels in the three specified countries.

3. RESULTS AND DISCUSSIONS

The researches carried out in the field have aimed at comparing the criteria of assigning the ecologic label for tourist housing services with the real existing conditions, as well as at underlining the agrotourist locations where the ecologic label can be implemented.
These criteria can be divided into two groups: compulsory and optional criteria.
Compulsory criteria. All such criteria in the group must be fulfilled.

Table following on the next page

Table 1: The Energy Criteria (European Commission Decision no. 287/2003/CE)

1	Electric energy coming from regenerating resources – At least 22% of the electric energy has to come from regenerating resources. In conformity with The Government Decision no. 1535/2003, the regenerating un-fossil resources are: the wind, the solar, the geothermal, the winds, the high tides, the hydro-electrical, the fermenting gas of scraps, the gas deriving from the used water and biogas separators.
2	Coal and hard oil fuel – The coal and the resources of hard oil fuel having a sulphur concentration higher than 0.2% is not to be used as energy resources. This criteria is applicable only to tourist housing hostels with own heating system.
3	Using electric energy for heating – At least 22% of the electric energy used for heating rooms and sanitary hot water has to come from regenerating energy resources.
4	Working capacity of hot water boilers – The effective working capacity of a new boiler/heat generator purchased within the period for which the ecologic label is assigned has to be of at least 90%.
5	Air conditioning units – All air conditioning units purchased within the period for which the ecologic label is assigned has to be classified at least as having B category energetic efficiency.
6	Windows insulation – All room windows have to have a high level of thermo insulation in conformity with the local climate and have to offer an adequate level of sound insulation.
7	Heat and air conditioning stop – If the air conditioning and heat are not automatically switched off when opening the windows, there has to be an easily accessible announcement reminding tourists to close the window/windows when the heating or air conditioning systems are working.
8	Lighting switch off – If the room is not equipped with a lighting automatic switch off, there has to be an easily accessible announcement reminding tourists to switch off the lights every time they leave the room.
9	Low energy consumption bulbs – Within one year from the date of submitting the request for the ecologic label, at least 60% of all the electric bulbs in the housing unit have to belong to class A of energy efficiency. Within one year from the date of submitting the request for the ecologic label, at least 80% of all electric bulbs situated in places where they are supposed to work more than 5 hours a day have to belong to class A of energy efficiency.
10	Sauna timing out – All sauna installations have to be equipped with timers.

Table 2: The Water Criteria (European Commission Decision no. 287/2003/CE)

1	The housing unit has to announce the authority responsible for the water supply with regard to its intention of switching to another water supply resource, such as: water from the public or the surface networks, if studies within the water protection plan demonstrate that using the current water resource has a great environmental impact.
2	Water flow at taps and showers – The water flow at taps and showers should not exceed the amount of 12 litters/minute.
3	Saving bathroom and toilet water – Both in bathrooms and toilets, there have to be adequate information regarding the best way tourists can contribute to saving water.
4	Garbage baskets in toilets – There should be a garbage basket in every toilet and tourists should be advised to use this one instead of the toilet basin for some scraps generated when using the toilets.
5	Water flow for wee units – Wee units should be equipped with an automatic or manual washing system that should not allow the cleaning of more than five units at a time.
6	Leakages – The personnel has to be trained to check on a daily basis for possible visible leakages and act accordingly. The tourist has to inform the personnel with regard to occurrence of such leakages.
7	Changing towels and bed sheets – The tourist has to be informed with regard to the environment protection policy used by the housing unit according to which the bed sheets and towels are changed either upon request or once a week for inferior housing units or two times a week for superior housing units.
8	Watering plants and gardens – Flowers and gardens have to be watered before noon or after sunset if the area or the climate conditions impose as such.
9	Used waters treatment – All used waters must be treated. If there is no such possibility of connecting to the local station for treating used waters, the housing unit must have one of its own.
10	Administration of used waters – The housing unit has to request the water management plan from the local authorities and in case such a plan exists, they are forced to respect it.

Table 3: The Detergents and disinfectants Criteria (European Commission Decision no. 287/2003/CE)

1	Disinfectants – The disinfectants are to be used only when it is needed for respecting the legal hygiene imperatives.
2	Personnel training regarding the use of detergents and disinfectants – The personnel have to be trained not to use a higher quantity of detergent or disinfectant than the one stipulated on the package.

Table 4: The Waste Criteria (European Commission Decision no. 287/2003/CE)

1	Separating waste by the tourist – The housing unit has to supply adequate recipients to allow tourists to separate waste in conformity with the local or national systems. There have to be clear information in every room inviting tourists to separate waste.
2	Dangerous waste – The personnel has to separate the dangerous waste. This includes toners, ink, freezing devices, batteries, pharmacy products. If the local authority does not ensure the discharge of dangerous waste, then the economic agent has to submit annually a declaration to the local authorities stipulating that there is no waste clearing off system.
3	Waste separation – The personnel has to separate the waste by categories that can be handled distinctly in the local or national installations for administrating wastes. If the local or national authorities do not provide the possibility of collecting and/or ellliminating separately the wastes, the housing unit has to send a letter expressing the wish to separate wastes.
4	Waste transport – If the local authorities do not collect waste at the housing unit or nearby, the latter has to provide the transport of its own wastes to the right place, reducing as much as possible the distance on which these wastes are carried.
5	Single use products – Unless the law expressly enforces it, in rooms and restaurants there will be no single use products such as: 'sliced' or single use care products such as shampoo, soap, glasses, plates, dishes.

Other services:
Non smoking areas in the common places – In the common places, there have to be a non-smoking area.
Public transportation – Tourists and personnel have to be able to get easy access to information regarding the way they can reach the housing unit and other local places by means of the public transportation.

Table following on the next page

Table 5: General management system (European Commission Decision no. 287/2003/CE)

1	Maintenance and general repairs – All installations used for tourist housing services are to be repaired and maintained in conformity with the national legislation in force and whenever necessary, the works will be performed by trained personnel.
2	Maintenance and repairs of hot water boilers – The maintenance and repairing of hot water boilers will be done at least once a year or even more frequently if such thing is stipulated by the national legislation in force or it is necessary.
3	Establishing policy and action plan – The managing board of the housing unit has to have a policy regarding the environment and to make a simple statement regarding the environment protection and a clear action plan to ensure that the environment protection policy is applied. The action plan identifies the performance goals in the environment protection field with regard to energy, water, chemical substances and waste that have to be set up every 2 years in consideration of the optional criteria. The program establishes the person responsible for the environment protection within the housing unit. Tourists have to be invited to express their comments.
4	Personnel training – The housing unit has to offer the personnel information and training courses, as well as written procedures and manuals in order to ensure the correct application of the environment protection measures.
5	Tourist information – The housing unit has to offer tourists information regarding its own environment protection policy, the actions taken in consideration hereof and the ecologic label. The information have to be offered to tourists in an active way at the reception and the announcements inviting tourists to support the environment goals have to be visibly posted, mainly in the rooms.
6	Data regarding the energy and water consumption
7	Other data gathering – The housing unit has to hold procedures of collecting and supervising the data regarding the chemical substances consumption (grams of dry substance) and the generated amount of waste (litres and/or kg of waste not separated).
8	Information shown on the ecologic service: Paragraph 2 on the ecologic label has to comprise the following text: a) measures taken for saving energy and water b) measures taken for reducing waste c) general measures for a better environment

3.1. Optional criteria

3.1.1 Criteria regarding the scoring

Based on the information comprised in the title of each criteria in this section, a scoring has been established for all optional criteria. The number of complied criteria has to amount to a total of 16.5 points. The total scoring will be increased with one point for each of the following three supplementary facilities offered which are administrated or constitute the property of the tourist housing unit: food services, sport activities and green areas. The food services include breakfast. The sport activities include sauna, swimming pools and other facilities located on the ground of the housing unit. Green areas include parks and gardens open for the tourists.

Table 6: The Optional Criteria (European Commission Decision no. 287/2003/CE)

1	**Energy** Photovoltaic and wind generation of electric energy (2 points) – The housing unit has to have a photovoltaic and wind electricity generating system which supplies or will supply 20% of the total annual consumption of electric energy. Energy for heating deriving from regenerating energy resources (1.5 points) – At least 50% of the total quantity of energy used for heating rooms or hot water has to come from regenerating energy resources. Energy efficiency of hot water boiler (1point) – The housing unit has to hold a hot water boiler classified with '****' energy efficiency. The NO(x) releases of the hot water boiler (1.5 points) – The hot water boiler has to be included in class 5 in conformity with the Romanian standard SR EN 297/A3:201 that govern the NO(x) releases and it has to release less than 70 mg No(x)/kWh. The urban central heating (1 point). The combined heating and electric energy production (1.5 points) Heating pumps (1.5 points). Heat recuperation (2 points) – The housing unit has to be equipped with a heat recuperation system for one (1 point) or two (2 points). Heating adjustment (1.5 points) – The temperature in each room has to be individually adjusted. Insulation of the existing premises (2 points) – The building has to be insulated according to the national minimum criteria so that it provides a significant decrease of the energy consumption. The air conditioning (1.5 points) – The air conditioning system has to be included in the A class. Automatic switch off of the air conditioning (1 point) – Bioclimatic architecture (2 points) – The housing unit has to be built in full respect of the bioclimatic architectural principles. Freezers (1 point), dish washing machines (1 point), laundry washing machines (1 point) and office equipments (1 point) that are efficient from an energetic point of view, class A. Location of freezers (1 point) Automatic lighting switch off in the tourist rooms (1 point) Automatic outdoor lighting switch off (1 point)
2	**Water** Using rain water (1.5 points) and re-circulated water (1.5 points) – The water flow at taps and showers (1.5 points). The toilet water flow (1.5 points. The dish washing machines water consumption (1 point) The laundry washing machine water consumption (1 point) The temperature and water flow of the tap water (1 point) Shower timers (1 point)
3	**Dangerous chemical substances** Detergents (maximum 4 points) – 80% should have an ecologic label. Dyestuff and indoor varnish (1 point) – 50% ecologic label Swimming pools disinfectant dosage – (1 point) Mechanical cleaning (1 point) Ecologic gardens (1 point)
4	**Wastes** Tin packing (2 points) Single use doses for drinks (2 points) Breakfast packing (2 points) Fat/oil discharge (2 points) Old textile materials and furniture (2 points)
5	**Other services** Communication and education regarding the environment protection (1.5 points) Rooms for non-smokers (1 point) Bicycles (1 point) Recyclable bottles (2 points) Paper products (up to 2 points) Long lasting goods (up to 3 points) Ecologic food (1 point) Local food products (1 point)
6	**General management** EMAS registration (3 points) or ISO certification (1.5 points) of the housing unit EMAS registration (1.5 points) or ISO certification (1 point) of the suppliers Questionnaire regarding the environment protection (1 point) Electricity and water meters (1 point) Extra measures for the environment protection (maximum 3 points)

4. CONCLUSION

The study pointed at the possibility of implementing the eco-label for accommodation services in the agro-tourism hostels in the three countries. The results obtained in 2007 showed that the possible degree of implementation was low: Hungary - 62%, Romania - 58% and Bulgaria - 49% (Chart 1).

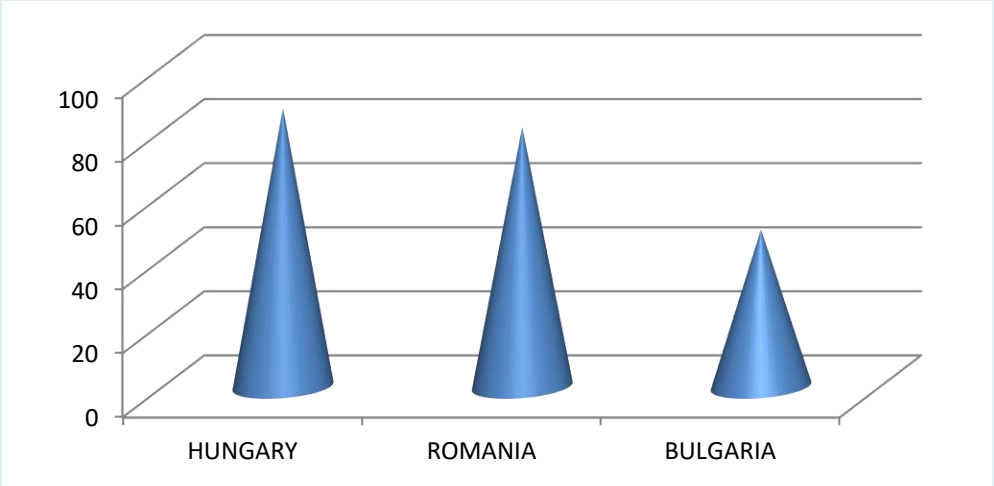

Chart 1: The implementation rate in 2007 (Personal calculations)

The results show the need of a massive allocation of funds, needed from local and central authorities to improve infrastructure and a great effort from boarders. These funds can not be covered solely by the profit generated by the introduction of the eco-label. One solution would be to acces European funds or to obtain low-interest loans from financial institutions.

The results in 2017 are encouraging to implement the eco-label in agritourism: Hungary - 87%, Romania - 81% and Bulgaria - 79% (Chart 2).

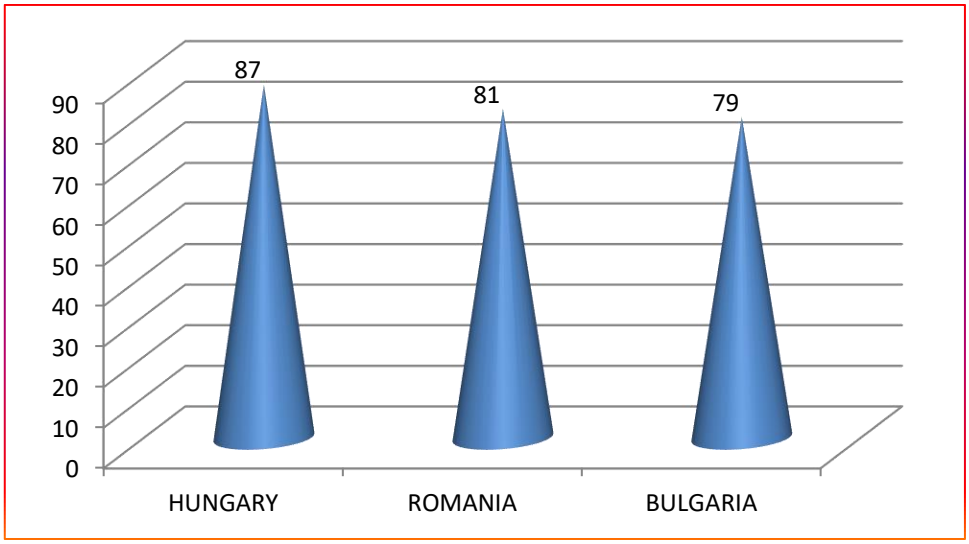

Chart 2: The implementation rate in 2017 (Personal calculations)

Evaluation and verification: The economic agent requesting the assignment of the ecologic label has to submit declarations of fulfilling these criteria together with the relevant technical documents.

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THE IMPACT OF THE EUROPEAN SOCIAL FUND ON ECONOMIC AND SOCIAL DEVELOPMENT IN ROMANIA

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ABSTRACT

Over the past 10 years, since its adherence to the European Union in 2007, Romania has received approximately 44 billion Euro as support for attaining a higher level of economic and social development within its regions. This paper aimed to analyse the impact of actions financed from the European Social Fund (ESF), the main instrument of the European Cohesion Policy for supporting people in getting better jobs and ensuring fairer job opportunities for all European citizens. The analysis focused on the results achieved within the Operational Program for Human Resource Development, a program funded from the ESF that was implemented in Romania between 2007 and 2015. In terms of the financial implementation of the program, the current absorption rate stands at approximately 90%, a relatively low rate if compared to the performance of other Member States. From a results-based approach, out of the 52 technical indicators set in the programming period for this program, 31 had an achievement rate of over 100% and just 21 of them were situated within the error margin considered to be normal in the European Commission methodology (their achievement rate was between 75% and 125%). In terms of the economic and social impact of the actions implemented through this program, results show that the implementation of the program contributed to the economic growth registered by Romania between 2014 and 2015 and has had a major contribution in terms of reducing the unemployment rate over the whole implementation period through its different fields of intervention (short and long-term training courses, supporting entrepreneurship, developing the education system, integrated actions for poor communities and other similar actions).

Keywords: *European Structural and Investment Funds, European Social Fund, Economic Development, Social Development*

1. INTRODUCTION

Since the adherence of Romania to the European Union in 2007 there has been a constant discussion in terms of the effects of the Cohesion Policy instruments in Romania and the ability of the Romanian public institutions to handle these instruments in an effective manner. In this context, the research presented within this paper aims to analyse the measure to which the Cohesion Policy instruments has had an impact on economic and social development in Romania, with a focus on human resource development programs funded from the European Social Fund. The research methodology involved a secondary research on public data on the implementation of the 2007-2013 timeframe program with a focus on indicators and results that have had an important impact on the economic and social development of Romania. The general objective of the program (the number of persons that have benefited from actions in the program) has been analysed and the results and indicators for each priority axis within the program have been presented and evaluated in terms of their degree of achievement and relevance to the general development of Romania. The paper briefly presents the background of the research, the most relevant results to the scope of the research and a series of conclusions for the further analysis and development of the research subject.

2. BACKGROUND OF THE RESEARCH

The Cohesion Policy is the main financing instrument of the European Union and it targets all regions and cities of the member states in order to support job creation, business competitiveness, economic growth, sustainable development and improve the quality of life. It provides the necessary investment framework and strategy to meet the agreed growth goals within the Europe 2020 Strategy – goals on employment, innovation, education, social inclusion, and climate/energy. In order to reach these goals and address the diverse development needs in all regions of the European Union, over EUR 350 billion (European Commission, 2014, pp. 2) – almost a third of the total EU budget – has been set aside for the Cohesion Policy within the 2014-2020 period. The Cohesion Policy is delivered through three main funds (the European Structural and Investment Funds – ESI Funds):

- European Regional Development Fund (ERDF): aims to strengthen regional economic and social cohesion by investing in growth-enhancing sectors to improve competitiveness and create jobs, alongside financing cross-border cooperation projects;
- European Social Fund (ESF): invests in people, with a focus on improving employment and education opportunities. It also aims to help disadvantaged people at risk of poverty or social exclusion;
- Cohesion Fund: invests in green growth and sustainable development, and improves connectivity in member states with a GDP below 90% of the EU average.

The main focus of this paper, the European Social Fund, was created in 1957 and is Europe's main instrument for supporting jobs, helping people get better jobs and ensuring fairer job opportunities for all EU citizens. The fund contributes directly to the achievement of three of out the five main targets of the Europe 2020 Strategy (European Commission, 2010, pp. 3), namely: employment (75 % of the population aged 20-64 should be employed); education (the share of early school leavers should be under 10% and at least 40% of the younger generation should have a tertiary degree); poverty (20 million less people should be at risk of poverty). The Romanian experience in terms of European non-refundable funds began before the actual adherence to the European Union and implied the usage of multiple pre-adhesion funds (PHARE, SAPARD and ISPA), with significant results in terms of the absorption rate. After the official adherence to the EU, on the 1st of January 2007, Romania would benefit from approximately 19 billion Euro in the 2007-2013 programming period that effectively ended in 2015 (Romanian Government, Ministry of Regional Development, Public Administration and European Funds, 2017, a). This sum was associated directly with the ESI Funds. The focus of this research paper will be, the Sectorial Operational Program Human Resource Development 2007-2013 (SOP HRD 2007-2013), the main program dedicated to the development of the human resources in Romania funded from the ESF in the first programming period in which Romania was a full Member State of the European Union. In terms of its financial implementation, the program is characterized by the most significant increase of the absorption rates (current and effective) in the final period of the programming period. At the end of 2015 this program had an effective rate of absorption of only 49,26%, while the average value for all programs stood at 58,86%. By the end of 2016, it had reached an effective absorption rate of 73,37%, while the average value for all programs was of almost 80%. After the final payment statements were sent to the European Commission, as mentioned before, the program overpassed the most important program in terms of allocation (the programs for environmental issues and transport infrastructure) and reached a declared rate of 90,81%, pending the evaluation process from the European institutions responsible for these actions. In terms of the proposed theme for research, the documentation and analysis phase for the current research highlighted the complete lack of previous research carried out within this area. I considered this to be a relatively normal result as the program that is the focus of this research was been

implemented until the end of 2015 and its final reporting actions have not been carried out by the time of this research. Thus, I considered the topic to be one of high novelty and interesting results could be achieved. Furthermore, another form of motivation was generated by the fact that I have been involved in the implementation of projects funded from this program as a technical expert and project manager.

3. THE ANALYSIS OF THE TECHNICAL IMPLEMENTATION OF ESF-FUNDED PROGRAMS IN ROMANIA

From the perspective of the technical implementation of the program, the analysis will focus on the level of achievement of the overall objective and indicators associated with the program, of which the most relevant for this analysis will be discussed. From the perspective of the general objective of SOP HRD 2007-2013, according to the latest available data (Romanian Government, Ministry of Regional Development, Public Administration and European Funds, 2017, b) until December 31, 2015, the participation of 4.028.968 persons in the operations was financed through the program. We mention that the assumed target was 1.650.000 people, thus clearing a broad overachievement of the program target. The table below shows a breakdown of persons who benefited from the program (as a target group), according to the criteria established by the program (gender, status on the labour market, age, vulnerable groups, level of education achieved).

Table 1: Analysis of the level of achievement for general program objectives

	Name of analysed indicator	Achieved level at the end of the program	Proportion in total
1	**Number of participants in the program**	**4.028.968**	**100,00%**
2	Number of persons that have entered program activities	4.028.968	100,00%
3	Number of persons that have finished program activities	3.917.065	97,22%
4	Number of persons still involved in program activities	0	0,00%
5	**Distribution of program participants by gender**		
6	Male	1.631.136	40,49%
7	Female	2.397.832	59,51%
8	**Distribution of program participants by labour-market statute**		
9	Number of occupied persons, out of which:	1.496.652	37,15%
10	Liberal professions (freelancers)	85.865	2,13%
11	Number of unemployed persons, out of which:	733.699	18,21%
12	Long-term unemployed persons	258.230	6,41%
13	Number of inactive persons, out of which:	1.752.965	43,51%
14	Inactive persons in education and training	1.008.748	25,04%
15	**Distribution of program participants by age**		
16	Young (15-24)	1.201.517	29,82%
17	Elderly (55-64)	208.043	5,16%
18	**Distribution of program participants by vulnerable groups**		
19	Participants from minorities	278.483	6,91%
20	Immigrants	1.271	0,03%
21	Persons with disabilities	55.251	1,37%
22	Persons from other vulnerable groups	1.058.064	26,26%
23	**Distribution of program participants by their education level**		
24	Persons with primary or secondary education (ISCED 1 and 2)	1.508.237	37,43%
25	Graduates of higher secondary education (ISCED 3)	1.155.685	28,68%
26	Graduates of post-secondary non-tertiary education (ISCED 4)	148.111	3,68%
27	Graduates of university and post-graduate education (ISCED 5 and 6)	1.111.792	27,59%

From the data presented in the table we highlight a low drop-out rate for persons entering a program operation (less than 3% of the total number of people enrolled).

However, it should be noted that this status has been granted to a person in the target group by the beneficiary who implemented the project and implicitly registered that person - thus, there are significant chances of registering a much higher rate of abandonment. Gender-based distribution, status on the labour market, age and level of education reveal a significant concentration of actions funded by the program on people with a status considered to be disadvantaged. To support this statement, we highlight the fact that female participants participated with a higher frequency in actions in the program (59,51%), even having major areas of intervention from the program dedicated to them. In addition, out of the total number of participants in the program, 43,51% were inactive and 18,21% unemployed (6,41% long-term unemployed). The young people (aged 15-24) accounted for 29,82% of the total number of participants, this category being very often analysed from the perspective of the problems encountered in finding a job (the NEET category - Not in Employment, Education or Training). Finally, people with a low level of education (ISCED 1 and 2) registered the highest share in the total number of participants (37,43%). Continuing the analysis of the technical implementation of the program and its social and economic impact, we present in the following table all program indicators, taking into account their target for the end of 2015 and the level reached at that time. The achievement rate presented in the table was obtained as a result of dividing the level achieved at the target assumed for that indicator. I would like to highlight the fact that a series of targets set initially for the program have been changed over the course of the implementation period – from my perspective, the two main reasons for this are the following ones: the lack of proper management in the first years of implementation and the financial crisis that took place in the Romanian economic and financial system between 2008-2011. With the targets being set in 2007, there was a significant need for updating them due to major change in context, as the unemployment rate rose to over 7% in 2009-2010 from exactly 4% in 2007 (Romanian National Institute of Statistics, 2017).

Table 2: Analysis of the level of achievement for technical program indicators

Priority	Name of indicators	Target	Achieved	Degree of achievement
Priority Axis 1	Number of supported school units	6.500	40.837	628,26%
	Number of universities supported	70	1.617	2310,00%
	Staff in education / training that has received support for development	75.000	352.559	470,08%
	Number of PhD students supported	15.000	11.822	78,81%
	Number of CVT vendors supported for the introduction of quality assurance standards	5.000	291	5,82%
	Number of professional qualifications developed in CVT	700	142	20,29%
	Share of supported school units that have received accreditation in terms of new quality assurance standards	80,00%	18,78%	23,48%
	Share of supported universities that received accreditation through new quality assurance standards	90,00%	78,92%	87,69%
	Share of supported doctoral candidates who have obtained their title	90,00%	47,20%	52,44%
	Share of education and training staff who have been certified	97,00%	92,34%	95,20%
	Share of supported CVT providers who have been certified / certified in terms of quality assurance standards	80,00%	10,60%	13,25%

Priority	Name of indicators	Target	Achieved	Degree of achievement
Priority Axis 2	Number of people supported in the transition from school to active life	150.000	260.061	173,37%
	Number of beneficiaries of career counseling services	400.000	374.108	93,53%
	Number of participants in "second chance" education	35.000	17.410	49,74%
	Number of CVT participants (qualification and re-qualification)	360.000	168.444	46,79%
	Share of pupils / students assisted in the transition from school to active life who have taken a job or have actively participated in further courses	65,00%	69,34%	106,68%
	Share of graduates of "second chance"	75,00%	67,40%	89,87%
	Share of enterprises providing CVT for own staff	20,00%	42,86%	214,30%
	Share of participants in certified CVT programs	90,00%	94,79%	105,32%
Priority Axis 3	Number of trainees trained to start a business	30.000	83.575	278,58%
	Number of students in the management and organization of work	15.000	49.058	327,05%
	Number of learners for upgrading and improving skills	280.000	169.645	60,59%
	Number of social partners and NGOs supported	500	3.164	632,80%
	Share of beneficiaries of training courses that initiate new business	35,00%	18,41%	52,60%
	Share of certified trainees in the management and organization of work	80,00%	85,68%	107,10%
	Share of certified students for upgrading and improving skills	80,00%	92,09%	115,11%
	Share of social partners and supported NGOs that provide community services	50,00%	100,00%	200,00%
Priority Axis 4	Number of supported employment agencies	200	1.628	814,00%
	Number of analyzes and forecasts regarding the labor market	36	290	805,56%
	Number of trained staff	3.000	13.093	436,43%
	Number of employment agencies providing "self-service"	100	108	108,00%
	Share of certified employment agencies in the quality management system	95,00%	83,04%	87,41%
	Share of trained staff with graduation certificates (%)	80,00%	79,05%	98,81%
	Share of unemployed in training programs out of the total unemployed who have benefited from at least one active employment measure	10,00%	10,97%	109,70%

Priority	Name of indicators	Target	Achieved	Degree of achievement
Priority Axis 5	Number of long-term unemployed participants in integrated programs	65.000	143.787	221,21%
	Number of participants from rural areas to integrated programs	150.000	235.960	157,31%
	Share of long-term unemployed who have participated in certified integrated programs	60,00%	56,45%	94,08%
	Share of rural participants in certified integrated programs	50,00%	62,09%	124,18%
	Share of certified participants in rural areas in integrated programs who have a job	15,00%	11,17%	74,47%
Priority Axis 6	Number of social economy structures set up	830	1.696	204,34%
	Number of participants in qualification / re-qualification programs for vulnerable groups	150.000	125.442	83,63%
	Number of dependents supported	40.000	21.434	53,59%
	Number of participants in training programs dedicated to social inclusion specialists	10.000	10.741	107,41%
	Number of transnational initiatives and supported partnerships	120	154	128,33%
	Number of jobs created by social economy structures	5.000	11.369	227,38%
	Share of participants in qualification / re-qualification programs for vulnerable groups receiving certification	55,00%	88,99%	161,80%
	Share of participants in training programs for social inclusion specialists who obtain certification	85,00%	71,59%	84,22%
Priority Axis 7	Number of promotion campaigns	15	17	113,33%
	Average annual visits on the website	90.000	210.000	233,33%
	Number of published booklets	200	4.755	2377,50%
	Number of studies, surveys	20	27	135,00%
	Number of Monitoring Committee meetings	18	18	100,00%

Taking a summary of the data presented in the table above, it can be noticed that out of the total of 52 indicators established for the program, the implementation phase determined the achievement of only 31 indicators – namely, the degree of achievement was more than 100,00% of the set target. It should be emphasized, however, that a number of indicators record very broad levels of overachievement - for example, 16 indicators record rates of over 200,00%. These situations reflect significant deficiencies in the programming activities, namely in the substantiation and establishment of the indicators to be achieved. In practice, it can be said that the financial resources allocated to the actions that have led to these indicators have not been used in the spirit of rigorous financial management and oriented towards the achievement of all targets in the program.

Breaking down the synthesis at each priority axis of the program (named in the enumeration below), the following results are obtained:

- Priority Axis 1 – Education and professional training in support of growth economics and development of knowledge-based society: 3 indicators based on a total of 11 established indicators;
- Priority Axis 2 – Correlation of Lifelong Learning with the labour market: 4 indicators based on a total of 8 established indicators;
- Priority Axis 3 – Enhancing the adaptability of workers and enterprises: 6 indicators from a total of 8 established indicators;
- Priority Axis 4 – Modernization of the Public Employment Service: 5 indicators from a total of 7 established indicators;
- Priority Axis 5 – Promotion of active employment measures: 3 indicators made out of a total of 5 established indicators;
- Priority Axis 6 – Promoting Social Inclusion: 5 indicators based on a total of 8 established indicators;
- Priority Axis 7 – Technical Support: 5 indicators from a total of 5 established indicators.

The most extensive non-achievements in terms comparing of priority axes can be found in actions under the first priority axis (Education and professional training in support of growth economics and development of knowledge-based society). We appreciate this as a very serious one, given that the economic and social impact of these types of actions is wide and with a long time horizon in terms of effects. In addition to these observations, we want to highlight the achievement of the indicator Number of universities supported – the results claim that the program supported a number of 1.617 universities, even though the Romanian higher education system comprises just over 100 state and private universities (Ministry of National Education, 2017). This situation also reveals a deficiency in the reporting of the degree of achievement of the indicators, which can also influence the results associated with other indicators in the program. At the opposite end of our analysis, we highlight Priority Axis 7 (Technical Support - the single axis with all indicators achieved) and Priority Axis 3 (Enhancing the adaptability of workers and enterprises – with 6 out of 8 indicators achieved). The result achieved in the last axis of the program is positive, but with a small impact on the economic and social environment in Romania, this axis having the role of supporting the implementation of the other axes. At the level of indicators associated with the third axis, we want to highlight the positive result in training and assisting people interested in starting a business on their own. However, this approach has not been adequately endorsed, at least in relative terms, given the achievement rate achieved by the indicator Share of training beneficiaries initiating new business (approximately 18% achieved from a target 35%). In absolute terms, however, the number of business initiated as a result of the program support was about 15.300 businesses (18,41% out of 83.575 entrepreneurs) compared to the target of 10.500 supported businesses (target of 35,00 % of 30.000 students). Thus, we can say that the program has reached the target set for this real indicator (businesses actually created as a result of program support), despite the fact that the share does not indicate this. Extending the analysis by taking into account the validation criteria used by the European Commission (the tolerable margin of error for the fulfilment of technical indicators is ± 25%), the results are as follows: out of the total of 52 indicators, only 21 indicators are between the margins acceptable achievements (situated between 75% and 125%). This situation reveals a real deficiency in the programming and preparation processes of the program, the allocation for some indicators being too high (the actions in the program have led to their massive overachievement). Complementarily, there are very low performance indicators (the lowest achievement rate was 5,82%), which can be justified by either a small allocation for the actions that would have led to its realization or a lack of realism in the

processes of substantiation and setting of program indicators. From a general perspective, in terms of the economic and social impact of the actions implemented through this program, results show that the implementation of the program contributed to the economic growth registered by Romania between 2014 and 2015 and has had a major contribution in terms of reducing the unemployment rate over the whole implementation period through its different fields of intervention (short and long-term training courses, supporting entrepreneurship, developing the education system, integrated actions for poor communities and other similar actions). Some indicators of the ones presented in table 2 directly highlight these contributions made by the program implementation phase – for example: Number of jobs created by social economy structures – 11.369 jobs created for socially vulnerable persons; Share of participants in certified rural areas in integrated programs who have a job – 11,17% out of 235.960, resulting in 26.356 jobs created for persons residing in the rural areas. Finally, even though the targets set for the program have not been fully achieved over the implementation period, it is undeniable that the analysed program has had an important impact within the Romanian economic and social system. Taking into account the specificity of the program, I consider that the most important effects were focused within the social development processes and less within the economic development area. The actions carried within the program offered people various opportunities, from obtaining new qualifications, going through an intership or receving seed-capital for starting up a business. All of the actions have contributed to the development of the human resource in Romania and the effects have to be analysed also from a long-term perspective, unavailable at the moment of this research – the program has ended in December 2015 and the research has been carried out in 2017, only two years after the implementation phase has been finalised. The ex-post analysis will be carried out for the following years and it will highlight aditional benefits that the program has had within the Romanian social and economic systems.

4. CONCLUSION

This research paper aimed to present and analyse the impact of actions financed from the European Social Fund on the economic and social context in Romania, within the 2007-2013 timeframe. Results highlight the fact that the success of the program itself is reduced as only 31 indicators have been achieved and only 21 of the 52 program indicators have been achieved within a margin of error of 25%. In addition to this, from the financial implementation perspective, the effects of the program are also not fully achieved as the maximum absorption rate that can be achieved after the final reporting and audit activities is approximately 90%. In contrast, most of the European Union states have had absorption rates of over 95%, while some countries even reached 100% and over - 8 member states achieved this target at the end of 2016, with the average absorption rate from the ESF being 96,32% (European Commission, 2017). However, even though the potential results of the program have not been fully achieved, its impact on the social and economic system and development in Romania cannot be negated. The human resources in Romania received significant help through the different actions financed from the program. Over 4 million people (representing over 20% of Romania's population) took part in different actions intended to develop their professional abilities and to improve their daily lives. Students had the important opportunity to obtain practical knowledge by taking part in internship programs financed through the program. Ph.D. student received financial support for carrying out their research and presenting their work in international conferences. Would-be entrepreneurs received important training in business and a part of them actually became entrepreneurs by starting up a business with seed-capital from the program. Vulnerable groups received support in order to overpass their barriers and limits and improve their lives through obtaining a job or creating social enterprises. The national education system received support in terms of updating education curricula, methodologies and work procedures in order

to more effectively use resources in this strategic domain. Behind all the reporting activities and numbers put forth by national and European public institutions, the most important impact of the program refers to offering different types of support for people to improve their lives and have a better contribution to the development of their communities. In terms of the research theme perspectives, there is a clear need to follow-up the results and indicators presented within this paper in the following years in order to validate them and their effects on the economic and social context in Romania. Furthermore, actions that have proved to be effective within the 2007-2015 period must be further financed and supported by public institutions from the financial resources available in the 2014-2020 timeframe, while research activities can support the manner in which resources are allocated towards different actions and priorities of investment.

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POSSIBLE MODELS OF POST-BREXIT OUTCOMES – FROM CARICOM AND EU PERSPECTIVES

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ABSTRACT

Problem: The research problem which the Authors undertake to solve is Brexit consequences.
Purpose: The main purpose of the research is to create the possible model of post-Brexit outcomes. The proposed research area in geographical terms consists of the selected countries. The planned research is to cover CARICOM and Poland countries.
Methodology: The paper is theoretical in character, so the methodology based on the statistics data and the existing models of non-EU countries in Europe.
The expected results of the research: The contribution to the development of the field of economic sciences: is identifying (creating) the most common model of post-Brexit outcomes for EU and for other countries on the CARICOM example. A contribution to economic practice will be recommendations for the Great Britain policy in the process of going out of the European Union.
Keywords: *BREXIT, CARICOM, Development*

1. INTRODUCTION

Brexit is an unprecedented event. For the first time in the history of European Communities one of the countries leaves the organization on the basis of the results of the national referendum. The main problem faced by the UK is the maintenance of 4 freedoms, namely the free movement of money, goods and services, investment and labour. Those freedoms were also the background if Brexit. Trade and immigration have been the two most influential factors influencing the Brexit vote. The dilemma for the UK is it is interested in maintaining the status quo in trade relations with the EU but curtail the free movement of EU citizens. Free movement of people is one of the 4 pillars of the EU. The others include free movement of capital, goods, and services. Approximately half of all immigrants in the UK come from within the EU. According to various pre-referendum polls, about 50% of Brexit supporters said immigration was their biggest concern. Financial contributions to the EU was the next reason for the voting results. The UK is a net contributor to the EU budget (Malhotra 2016). The argument of Brexit supporters was that the money saved could be used in other sectors of the economy (e.g., to enhance the UK's National Health Service). In any case, the UK will be required to pay into the EU budget if it wants to avail of access to the single market. In all precedents, non-EU members Norway, Iceland, and Switzerland all make financial contributions in exchange for access to the single EU market. The precise amount of the financial obligations of the UK would need to be negotiated. Therefore, leaving the EU would not free the UK of having to pay membership dues, opposite to what Brexit supporters claimed. The consequences of exit decisions are difficult to predict, even in the course of the Brexit Negotiation (2017), as many unfavorable phenomena take place in Great Britain itself.

The Authors aim to show the possible ways (models) of cooperation with the European Union and CARICOM countries after leaving the European Union by the United Kingdom. Patterns will be used to model close cooperation between European countries outside the EU. The

available statistics and descriptions of existing models (Swiss models) were used to achieve the objective: Swiss, Norwegian, WTO. Predictions about the British economy after Brexit dominated the first pages of newspapers and magazines for a long time. On June 23 in 2016, an important event took place, the consequences of which are difficult to predict. That is why many economists also took up this problem in scientific journals. The mainstream is about short-term and far-reaching consequences for the British and world economy. Among the authors pointing to unfavorable consequences for Great Britain is A. Cofnas (2017), who described the impact of this decision on economic measures soon after the voting results. The changes he draws attention to are the fall in the value of the British pound. He forecasts also other problems, such as inflation and unemploiment. From the other hand there are challenges for the UK economy, which is mentioned by M. Opritescu and M. Perpelea (2016). There is something about the European Union desintegration, as T. Sampson (2017) writes about. T. Ćapeta (2017) predicts the effects of Brexit on the EU by delimiting three different periods (three acts):

- Act One: the immediate period following the referendum and preceding the initiation of the withdrawal procedure;
- Act Two: the transitional period, which will open with the UK notification of withdrawal and last until the UK ceases to be an EU member;
- Act Three: the long-term consequences for the legal and political system of the EU and, with it, the European continent.

The EU institutions must follow Treaty-prescribed procedures, especially when they enact legal rules. The question arises, therefore, about how decision-making at the EU level will be organised and what kind of frameworks as precedents will be established?

2. TYPES OF POST-EU FRAMEWORKS AND RELEVANCE TO CARICOM - POSSIBLE POST-BREXIT OUTCOMES

Currently, two types of frameworks serve as precedents in which non-EU member countries, Norway (and Iceland) that form the first precedent framework, and Switzerland, forming the second precedent. Unlike the former, Switzerland follows a more restrictive framework that extends access to the EU common market to a non-EU member through the framework known as EEA, and various bilaterals. Norway and Iceland form one framework (precedent 1) while Switzerland forms another more restrictive framework of market access to the EU through a series of bilateral agreements. A trading-bloc unrelated market access also exists within the framework of the WTO. Many possibilities for a post-Brexit scenario exist, including a Norway/Iceland, Switzerland, or Canada-type framework. In addition, no agreement would result in a default WTO trade scenario. The model of Norway is discussed further as it is the more relevant to the UK economy compared to an EFTA model.

2.1. Precedent 1: The Norway model

Norway has access to the single market through its membership in the European Economic Area (EEA) including passporting rights. As an EEA member, Norway has to accept all conditions equal to EU membership, namely free movement of people, a majority of other EU regulations, and financial obligations to the EU budget. A Norway model would mean accepting mostly the same conditions as those prior to Brexit and losing a vote as an EU member. To be outside the EU, Norway pays a relatively high cost and accepts all conditions which would come with EU membership for simply keeping its options open. For the UK, this model would not lead to savings from a cessation of contributions to the EU budget, which was frequently cited as a reason to leave the EU during the Brexit campaign. Moreover, Norway

accepts the free movement of people, which is in opposition to the UK stance, and therefore a questionable outcome.

2.2. Precedent 2: The WTO model

The absence of a specially negotiated agreement following Brexit would lead to a 'WTO' type of trading arrangement with the application of MFN status to trading partners. In all three cases, the UK would not be part of any EU customs union. As a consequence, rules of origin would be applied to UK exports to the EU. No access to the EU's free trade agreements with third parties exists in any of the three scenarios. Fortunately, the existence of the EPA rules of origin are of significant relevance within the realms of future free trade agreements as currently there is no sample agreement that liberalizes rules of origin to non-EU members. EEA members such as Norway and Iceland are subject to the rules of origin regime. Therefore, an EEA membership has decisive disadvantages to being an EU member.

2.3. Precedent 3: EEA/EFTA

A negotiation of an EEA/EFTA type of deal by the UK, similar to what Norway and Switzerland have done, however, is of limited relevance to any country outside the EU. Some countries and regions have comprehensive economic partnership agreements with the EU, such as CARICOM, but those countries would need to redeploy their logistics away from the UK to reach the EU directly following Brexit, failing which their products would become subject to customs duties.

3. UNITED KINGDOM'S TRADE WITH CARICOM AND EUROPEAN UNION

The following tables represent the value of trade in goods and services between CARICOM and the UK, and EU, respectively. It is worthy to note the high share of trade with the UK. Following Brexit, the market of the UK, will cease to be covered by the EPA (Economic Partnership Agreement), a form of free trade agreement, which has allowed most Caribbean exports enter the EU without duties. Due to historical ties, the majority of exports went to the UK. Until a resolution is found, Brexit would close the UK market to CARICOM immediately.

Table following on the next page

Table 1: Value of CARICOM Countries' Total Exports to the United Kingdom in USD: 2006-2015

(USD)

CARICOM COUNTRIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CARICOM	**540,278,118**	**731,491,177**	**839,053,802**	**806,760,729**	**498,072,996**	**670,693,384**	**569,484,742**	**470,629,018**	**495,508,865**	**195,642,980**
BARBADOS	33,024,904	28,579,484	41,156,301	32,816,764	52,629,077	55,035,476	31,252,552	8,632,892	16,748,181	14,046,023
GUYANA	99,260,573	151,111,606	140,375,906	111,915,002	48,162,678	77,590,170	114,773,610	116,459,325	97,065,788	91,180,838
JAMAICA	204,667,370	215,994,448	222,793,776	129,649,487	83,925,772	111,617,286	45,086,396	81,769,904	75,903,629	-
SURINAME	-	-	-	-	-	-	-	-	-	-
TRINIDAD & TOBAGO	120,902,970	224,527,385	334,542,427	401,587,307	213,247,616	348,108,716	287,029,914	155,569,359	190,496,217	-
BELIZE	44,309,996	47,990,040	58,082,265	79,578,499	71,187,695	66,514,313	78,403,842	86,337,273	89,802,250	81,896,961
ANTIGUA & BARBUDA	-	4,129,558	3,644,029	9,984,387	6,835,752	2,418,664	5,374,775	6,812,467	6,155,147	6,796,994
DOMINICA	7,653,000	5,186,708	5,325,858	3,841,949	2,676,412	461,791	340,065	405,294	-	-
GRENADA	228,162	298,479	504,223	572,234	250,516	110,330	309,156	471,653	1,479,124	693,709
MONTSERRAT	197,586	166,187	118,555	152,562	-	-	48,378	7,947	1,346	-
ST. KITTS & NEVIS	949,461	1,069,134	2,879,747	426,765	255,601	165,675	83,201	370,273	17,423	-
SAINT LUCIA	19,407,364	43,014,856	24,913,430	31,527,254	14,403,404	7,758,608	6,002,944	13,441,124	16,753,920	-
ST. VINCENT & GRENADINES	9,676,732	9,423,292	4,717,285	4,708,519	4,498,473	912,355	779,909	351,507	1,085,840	1,028,455

Source: Caricom Tradis Database (2016), http://www.caricomstats.org/caribbean-statistics-day-2016.html [19.01.2018]

The statistics presented in Table 1 show that CARICOM exports to the UK have changed in the years 2007-2015. However, there is a general downward trend. Looking at individual countries - MDCs had the highest share in this export. Within the bloc, the largest exporters are Jamaica and Trinidad & Tobago, followed by Guyana and Barbados. While many exports consist of agriculture, Trinidad and Tobago's exports consist mostly of petroleum, gas, oil, as well as fuel and mining products (European Commission, 2017). The common factor is that despite the difference in goods, the value of exports has declined for all countries. Some of the decline can be attributed to a lower oil price (in the case of Trinidad & Tobago), as well as diversification of technologies in developed countries away from oil towards renewable sources of energy.
For other countries in CARICOM, exports consist of agricultural products such as bananas, sugar and rum, while minerals such as aluminium oxide, iron ore products and fertilisers form the remaining share (European Commission, 2017). In 2015, the European Union accounted for 43.7% (223 billion British pounds) of UK goods and services exports, and 53.1% (291 billion British pounds) of UK imports, therefore making it the UK's largest and most important trade partner (The Statistics Portal, 2018). As of 2015, the UK imports more from the EU than it exports to it. In this year the UK's deficit on trade in goods and services with the EU was valued at approximately 23.4 billion British pounds, while the surplus with non-EU countries was slightly less than 11.3 billion British pounds. Although, due to the result of the 2016 EU referendum on Brexit, the UK's new trading relationship with the EU will be the product of negotiation.

4. DISCUSSION

Will the UK exit from the European Union help to intensify cooperation with the CARICOM countries? You can also predict this scenario. The UK, without being subject to reciprocal agreements within the EU, can work towards closer cooperation with countries outside the

European Union. Assuming a restriction on trade (restriction of 4 freedoms) within the Common Market - the relaxation of trade relations in Europe should result in the establishment of such relations with non-European countries.

5. CONCLUSION: LIKELY POST-BREXIT SCENARIO

Due to the EU-EPA currently in force, two important resulting scenarios emerge. The first scenario is if the UK manages to form a Customs Union with the EU following Brexit negotiations, which would allow CARICOM companies to retain their re-export/trans-shipment arrangements from the UK to the EU. In this scenario, however, we assume that no suitable replacement of an EPA type agreement would be concluded between the UK and CARICOM as a substitute for the EU-EPA in the short term. The absence of a specially negotiated agreement following Brexit would lead to a 'WTO' type of trading arrangement with the application of MFN status between the UK and Caribbean trading partners. It must be noted that the current EU-EPA already provides a free-trade framework for CARICOM members with the EU, moderating some adverse impacts of Brexit to the EU. However, more than 40% of CARICOM trade is with the UK, some of which is re-exported to the EU – approximately 23%. However, a rerouting of re-export channels away from the UK as a transit point within the EU would be inevitable and entail transaction costs to companies based in CARICOM. Therefore, the scenario we discuss with regard to UK-CARICOM trade is based on WTO rules. It is important to note that even a customs union by the UK with the EU, which is not unprecedented as small states such as Andorra, Monaco, Liechtenstein, and San Marino are in a customs union with the EU. However, CARICOM goods are non-EU goods and would be thus be subject to WTO rules as they enter the UK with the non-applicability of the EPA to the UK following Brexit.

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ANALYZE OF HUMAN RESOURCE ALLOCATION IN HIGHER EDUCATION APPLYING INTEGER LINEAR PROGRAMMING

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ABSTRACT

Contemporary organisations are surrounded with various constrains as well as limited number of different resources essential for their performance. Their managers seek to find an optimal resource allocation to a number of tasks, for optimizing objectives due to given constraints. Consequently, optimizing human resource allocation in order to fulfil organisational goals, primary to maximise profit and at the same time to minimize total costs or loss of time, represents one of the most demanding managerial decision making. The main aim of this paper is to optimise human resource allocation within Croatian higher education system in terms of minimising employees' costs. The paper suggests usage of integer linear programing model in order to determine the required number of teaching and researching faculty staff to fulfil all their duties (related to students) and at the same time to minimise their salaries expenditures. The model will be applied on the chosen example of Croatian faculty, due to the fact that Croatian teaching and researching staff is lately constrained in advancement and promotion by insufficient investments and is confronted with significant cutting costs. Besides minimising salaries expenditures, as its primary goal, model has to offer optimal solution which will provide the best possible quality for students within higher education system. Suggested model will be applicable to any Croatian faculty. It will secure optimal level of teaching and researching positions whose objective is to evolve and progress on individual level, delivering quality to their students as well as recognition and competitive advantage to their institution.

Keywords: *higher educational system, human resource allocation, human resource planning and programming, integer linear programming model*

1. INTRODUCTION

Many Croatian faculties nowadays are facing with problems of employing a great number of professors at the highest teaching and researching positions which correspond to high salaries expenditures, while on the other hand is evident shortage of the overall teaching stuff due to a limited number of new employments. Moreover, two main reasons for employing the large number of full professors at their young age are: the existence of relatively low criteria which scholars had to meet in order to be promoted and the fact that scholars who meet the required criteria for their promotion were assigned the new status, regardless of other factors such as salary, organisational structure, etc. The main question of this research is whether a different approach to human resource allocation within chosen Faculty would yield a higher efficiency with the same or even lower financial burden. Therefore, this paper will suggest optimal human resources allocation using human resource programming on the example of chosen Croatian Faculty. Furthermore, the results obtained from presented model will be compared to current structure of teaching and researching staff upon the chosen example.

2. THEORETICAL ASPECTS

2.1. Human resource planning needs

Human resource planning (HRP) represents starting point within human resource management (HRM). It is based on the attitude that human resources represent the most important organisational resource. Human resources stand for the most important organisational capital, because those are valuable and exceptional, it is not easy or even possible to copy or imitate them, so if properly managed they create organisational success and competitive advantage. This is one of the main reasons expressing why an organisation has to employ and develop adequate number and profile of employees, considering at the same time that employees are accessible at the appropriate time and in the appropriate places. Analysing previous statement element by element, adequate number of employees considers implementation of quantitative analysis, more precisely decision about the exact number of employees (not causing surplus or shortage of the workforce) required to fulfil all organisational requirements. Continuously, adequate profile or sort of employees stands for qualitative analysis implementation. This understands employees which possess proper educational level, knowledge, skills, abilities, work experience, as well as individual attitudes, believes or motivation which are in coordination to organisational business requirements and goals. Furthermore, having employees at the appropriate time understands providing plans for forecasting possible internal or external changes that could determine required number of employees. Finally, employing people in the appropriate place, considers the fact that employees should be put in the right position, coordinating particular job requirements and employees characteristics, which at the end leads to human resource planning. To summarize the full potential of HRP, it can be expressed that it is a process of analyzing and identifying the need for and availability of human resources so that the organisation can meet its objectives over longer period of time (Mathis, Jackson, 2008, p. 45). Armstrong (2006, p. 363) observes HRP as a broader issue about the employment of people, in which well tested quantitative techniques are applied to long term assessment of supply and demand in order to improve organisational effectiveness, playing in such a way an important part in strategic management. The purpose of HRP is to deploy human resources as effectively as possible, where and when they are needed in accomplishing organisational goals (Bohlander, Snell, Sherman, 2001, p. 122) in such a way relating to strategic planning. The process starts with forecasting labor surplus or shortage, continues through goal setting and strategic planning and finalizing with program implementation and evaluation (Noe, Hollenbeck, Gerhart, Wright, 2010, p. 193), interrelating it to overall organisational goals and strategies. One of the crucial questions corresponding to HRP is how the existing human resource potentials of the organisation can be utilized in the future to fulfil organisational requirements and goals. HRP, as decision making process, traditionally interrelates with different HRM areas in terms of anticipating future workforce and organisational requirements. Human resource plans include tight correlation and coordination usually with other HRM fields, first with recruitment and selection as starting activities and support and retention as further going activities, emphasizing motivation, training and individual development. Analogous, (Samolejová, Wicher, Lampa, Lenort, Kutáč, Sikorová, 2015, p. 243) author define three common areas of HRM, such as recruitment (including selection, arrangement and adaptation), training and employee motivation. According to detailed analysis, authors identified 13 major planning factors (within three areas) of the selected HRM areas (reported in 80% surveyed enterprises). Therefore, if HRP is not provided properly, all other HRM activities will be provided in insufficient potential causing possible mistakes and costs. Inappropriate decision making or steps provided within HRP could at the end create labour surplus or shortage, which will cause different organisational problems and unpredicted cots. If HRP is not provided properly and on time, causing labour surplus, this will create many problems for employees.

However, some major issues are related exclusively to employers, such as: lower productivity, loss of competition, problems within industry, loss of crucial human capital, higher salary costs or cost of terminations. On the other hand, decreasing the number of employees is not the uniform solution, especially when it causes shortage of employees. Even so, employers are facing tremendous problems and losses, such us: unsuitable supply of quality workers, productivity stagnation, overlooked potential chances, problems within industry or cost of overtime work. Eventually, organisations are required to scan internal and external supply of workforce and using proper techniques and methods to forecast workforce demand fulfilling organisational requirements (having people with proper traits and skills) in order to establish settled objectives and maintain organisational growth and competitive strength.

2.2. Human resource allocation and programming

Having the adequate number of employees in any organisation, raises the question of their proper utilization. Optimizing human resource allocation in order to take advantage of their benefits, as maximizing their final performance and organisations' profit, and/or at the same time minimizing negative business effects, such as total costs or loss of time, represents one of the most demanding managerial activities within HRP. Seeing that human resource allocation has to fulfil different requirements and has to resolve various solutions, usually it is oriented towards long-term run, in such a way accomplishing and supporting business needs and requirements. Consequently, human resource allocation problem seeks to find an optimal allocation of a limited amount of resource to a number of tasks, for optimizing their objectives subject to the given resource constraint. Observing human resources to other types of resources can be stated that their allocation problem is considered very complex due to the human characteristics of persons to assign (Bouajaja, Dridi, 2016, p. 340). There has been growing interest in human resources allocation in the literature recently. This is approved by Boujaja and Dridi (2016) who provided a comprehensive research observing 147 different research papers dealing with human resource allocation problem in the last 20 years. Human resources are today recognized as a source of competitive advantage, hence more attention is paid to their optimisation (Bouajaja, Dridi, 2016, p. 361). The authors revealed that the most cited papers (72%) focus on mono-objective human resource objective problem, while only 28% of the references consider multi-objective optimisation problems. In solving allocation problem, various references use diversity of approaches and techniques where generic algorithm can be pointed out as one used in the majority of cases (30%). Also, what is important to mention, human resource allocation problem is recognised in several business fields, starting within health and care systems and project management. However, this problem is not only limited to those areas, but its application is also significant in hospitality and tourism industries, aircraft systems, military, educational systems and others. Since the greatest attention towards human resources wellbeing has been evolved in past decades, there have been developed different tools in resolving human resource allocation problems in different organisations. One of those is human resource programming, as part of overall organisation programming, whose purpose is recognition and supply of needed personnel regarding future changes. It helps organisation to estimate organisational and environmental changes relevance to its activities with minimum costs, respecting quantitative and qualitative aspects, such as number and type of employees (Nikoei, Jamshidi, Sharifabadi, 2013, p. 136). The other example is the use of linear programming to present a model for supply and application of human resources, so that allocated cost and budget were considered for each unit of organisation. Purpose of this research is determination of needed persons for government organisation provided that total costs of personnel salary supply for employees become minimum by organisation (Nikoei, Jamshidi, Sharifabadi, 2013, p. 142). In order to define in which unit and which grade personnel must be employed, so that organisational costs (allocated budget for personnel salary) are minimised,

the authors defined 19 different decision variables and 21 limitations. Although, majority of researches observing human resource allocation problems were oriented towards problems within industry or project management systems, there is notable number of those researches dealing with this problem within education system. China is an example of developing country with a large population, still facing many problems in the higher education resources allocation. Besides unbalanced regional development in China, there are also registered big differences within higher education resource distribution, such as differences in: stock and development scale of higher education resources, total investments of higher education, university teachers' level, gross enrolment rate of higher education, distribution of high-quality higher education resources and benefits of running universities and colleges (Li, Wang, 2014, p. 56-57). Previously mentioned issues are matter of higher education resources allocation mechanism under macro-regulations. However, these issues are more easily resolved if they are under micro-regulations and if there is evident narrower scope of the analysis, which will provide more precise results. Therefore, there is an example of managing and allocating faculty resources at University of South Indiana. This research revealed application of goal programming technique, as a decision making tool used in various business and non-business areas that is capable of handling problem solutions that involve multiple and often conflicting goals (Hemaida, Hupfer, 1994/1995, p. 24). The goal programming method was applied to provide resolution in a way that university hires the most qualified faculty members in order to provide quality education to its students, but at the same time minimizing its costs, which makes those goals at the end of the spectrum of options. In order to propose adequate model, authors structured five goals, which are ranked as follows: (1) to assure coverage of the required course hours, (2) to maintain faculty split of 80% full-time and 20% part-time, (3) to maintain 65% terminal degree coverage rate of full-time faculty, (4) to attain a desired distribution of faculty with respect to rank and (5) to minimize costs (Hemaida, Hupfer, 1994/1995, p. 25). Nevertheless, applied model can be designed to the entire academic area, particular school within university or particular department within a school. Additionally, model can be applied on the bases of different goals and constraints.

3. HIGHER EDUCATION SYSTEM AND ITS EXPENDITURES IN CROATIA

Research and higher education represent fields which can be remarked as the especially important fields for any country. Investments in higher education should be observed as investments for countries' better future, securing educated, skilled and experienced individuals and teams of future employees, which will support enrichment of entire society, create competitive advantage for different entities on macro and micro level as well as create individual wellbeing. The main goal that each higher education system should fulfil is providing the best possible quality for their students. Each education system, university, faculty or particular department are making efforts in educating high quality individuals. However, some of those institutions are constrained and financial issue represents one of their firm limitations. Therefore, Croatia is an example of developed country which understands the importance of continuous investments in education and pays attention in securing the most important educational goals. However, unavoidable present problem is financial constraint, placing Croatia at the bottom of EHEA[1] countries lists, on behalf of provided expenditures on higher education. Also, economic crisis has had a strong impact on the level of public funding of education in Croatia, where its higher education system was not spared (European Commission/EACEA/Eurydice, 2015, p. 37). Nevertheless, in order to secure high quality education system in Croatia, higher education institutions employ quality researching and teaching staff whose main objective is to evolve and progress on individual level during their

[1] Members of European Higher Education Area.

entire work life, creating high quality for their students and recognition and competitive advantage for the entire institution. In order to fulfil its main objective, Croatian education system recognizes different researching and teaching positions[2], ranking them as following:[3] (1) junior researcher, (2) postdoctoral researcher, (3) assistant professor, (4) associate professor, (5) full professor, (7) lecturer and (8) senior lecturer (according to Zakon o znanstvenoj djelatnosti i visokom obrazovanju, 2015). Teaching and researching staff in Croatia are advancing from position of junior researcher till the position of full professor implementing required conditions (in terms of researching and teaching) including minimum time spent at each position. Their professional advancement, till recently, was strictly result of their personal effort, will and accomplished performances in certain period of time. On the other hand, education system enabled individuals to advance in regular period of 5 years, or provided them with possibility of earlier advancement in time period of 3 years. As far as the maximum length of time that members of faculty staff were able to stay at the same position, was the period of 10 years, providing them with the possibility to stay at the same position twice in a sequence fulfilling defined requirements. However, crisis and insufficient investments have lately also affected Croatian higher education system. Currently, there is evident deficient funding within different areas of education system and consequently those decreases possibilities for personal development and advancement of Croatian teaching and researching staff. Additionally, what has changed recently in the terms of staff advancement is the fact that Croatian faculty staff is not faced any more with the possibility of earlier advancement, regardless of their performing results. Although, if their results are exceptional, faculty staff has the possibility to advance minimum 5 years after placing their previous position, because of insufficient funds for increasing base pays caused by their advancement. Moreover, financial problems can also cause situation that they may stay at the same position even after 5 years, disregarding their substantial efforts and results and waiting for (financial) better times. Advancement after 3 years is only possible for members of staff who fulfil requirements for the next two positions in advance, meaning that assistant professor can be promoted after 3 years to the position of associate professor only fulfilling all requirements equivalent to full professor. Considering the fact that individual performing results, effort and motivation in Croatian higher education system are not sufficient any more for individual advancement and promotion, but those are quite constrained in terms of financial funding, this paper and related model suggest optimal allocation of teaching and researching members within particular university. Proposed model will optimise allocation and structure of teaching and researching staff on the example of chosen Croatian Faculty with the primer goal of minimising their salaries expenditures and at the same time not decreasing the quality of education system and accomplishing all goals and requirements related to the number of enrolled students.

4. RESEARCH METHOD

In order to provide optimal human resource allocation upon the observed example, integer linear programming is applied. The first step in forming a model for managing Faculty human resources is gathering the necessary information. The main goal of the model is to find optimal human resources allocation within a Faculty in order to minimize salaries expenditures, while fulfilling all obligations in working with students. The information required to form the model are as follows:

- The number of different departments within the organization and their structure
- Average gross salary of an employee at a given position

[2] All positins in Croatian higher education institutions (except lecturers and senior lecturers who are in charged only of teaching) are in charged of researching and teaching activities.

[3] Positions are listed here according to positions within particular faculty, excluding academies or colleges (high schools).

- Number of teaching hours per employee at a given position
- Total number of teaching hours (lectures and tutorials) within each department
- Total number of students
- Required number of final and master theses in an academic year
- Maximum number of students per teacher.

Based on presented example, Faculty staff consists of junior researchers, postdoctoral researchers, assistant professors, associate professors and full professors working within single departments. Also to a lesser extent, a few lecturers who teach courses such as physical education and foreign languages make up a separate department. The goal of the model is to determine the necessary number of junior researchers, postdoctoral researchers, assistant professors, associate professors, full professors and lectures within each department to fulfil all duties in working with students and make salaries expenditures as minimal.

Target function presented as follows:

$$\min z = \sum_{i=1}^{N} p_i x_i \qquad (1)$$

where

p_i - represents average gross salary in a given position,

x_i - represents number of employees at a single position.

Model constraints are:

$$a_{j,1}x_{5j-4} + a_{j,2}x_{5j-3} + a_{j,3}x_{5j-2} + a_{j,4}x_{5j-1} + a_{j,5}x_{5j} \geq b_j \quad j = 1,2,...M-1 \qquad (2)$$

where

$a_{j,1}, a_{j,2}, a_{j,3}, a_{j,4}, a_{j,5}$ - represent a number of classes to be taught by junior researchers, postdoctoral researchers, assistant professor, associate professor and full professor within department j,

b_j - represents a total number of lectures within department j.

There is a similar constraint for number of hours of tutorials:

$$c_{j,1}x_{5j-4} + c_{j,2}x_{5j-3} + c_{j,3}x_{5j-2} + c_{j,4}x_{5j-1} + c_{j,5}x_{5j} \geq d_j \quad j = 1,2,...M-1 \qquad (3)$$

where

$c_{j,1}, c_{j,2}, c_{j,3}, c_{j,4}, c_{j,5}$ - represent a number of hours of tutorials to be held by junior researchers, postdoctoral researchers, assistant professor, associate professor and full professor within department j,

d_j - represents a total number of hours of tutorials within department j.

Given the fact that lecturers can both provide lectures and tutorials alike, there is a constraint for Department M

$$ex_N \geq f \tag{4}$$

where
e - represents number of hours of tutorials and lectures which may be held by a lecturer,
f - represents a total number of teaching hours within Department M.

If within Department M some non-related courses exist, which cannot be provided by the same lecturer (e.g. foreign languages and physical education), then previous limitation has to be applied for each group of related courses.

The following constraints that may be introduced relating to students' theses are:

$$\sum_{i=1}^{N} g_i x_i \geq h_i \tag{5}$$

where
g_i - represents a number of students' theses per teacher,
h_i - represents a total number of students' theses.

Additional limitations that may be introduced may relate to the minimum number of teachers of a single title or to the distribution of the total number of students per teacher. Since decision variables represent the number of employees at a single position, it obviously applies that the variables x_i, $i = 1, 2, 3, ..., N$ integer and $x_i \geq 0 \ \ \forall i \in \{1, 2, ..., N\}$. Therefore, the resulting model represents the model of integer linear programming.

5. DATA ANALYSIS

Currently, 2800 students attend the observed Faculty. Also, there are eight departments with junior researchers, postdoctoral researchers, assistant professors, associate professors and full professors, as well as a department with lecturers for foreign language and physical education courses. Number of total hours related to lectures and tutorials is presented in Table 1.

Table 1: Number of total houres of lectures and tutorials within a department

	lectures	tutorials	Σ
DEPARTMENT 1	2040	1200	3240
DEPARTMENT 2	2640	1530	4170
DEPARTMENT 3	1290	1635	2925
DEPARTMENT 4	1800	1200	3000
DEPARTMENT 5	3420	2370	5790
DEPARTMENT 6	2340	1920	4260
DEPARTMENT 7	1200	615	1815
DEPARTMENT 8	1800	1260	3060
DEPARTMENT 9	1050	840	1890

Positions within a department and a number of teaching hours, which a teacher has to provide at a single position, are presented in Table 2.

Table following on the next page

Table 2: Total number of teaching hours per position

DEPARTMENT 1	JUNIOR RESEARCHER	x_1	150
	POSTDOCTORAL RESEARCHER	x_2	225
	ASSISTANT PROFESSOR	x_3	300
	ASSOCIATE PROFESSOR	x_4	300
	FULL PROFESSOR	x_5	300
DEPARTMENT 2	JUNIOR RESEARCHER	x_6	150
	POSTDOCTORAL RESEARCHER	x_7	225
	ASSISTANT PROFESSOR	x_8	300
	ASSOCIATE PROFESSOR	x_9	300
	FULL PROFESSOR	x_{10}	300
DEPARTMENT 3	JUNIOR RESEARCHER	x_{11}	150
	POSTDOCTORAL RESEARCHER	x_{12}	225
	ASSISTANT PROFESSOR	x_{13}	300
	ASSOCIATE PROFESSOR	x_{14}	300
	FULL PROFESSOR	x_{15}	300
DEPARTMENT 4	JUNIOR RESEARCHER	x_{16}	150
	POSTDOCTORAL RESEARCHER	x_{17}	225
	ASSISTANT PROFESSOR	x_{18}	300
	ASSOCIATE PROFESSOR	x_{19}	300
	FULL PROFESSOR	x_{20}	300
DEPARTMENT 5	JUNIOR RESEARCHER	x_{21}	150
	POSTDOCTORAL RESEARCHER	x_{22}	225
	ASSISTANT PROFESSOR	x_{23}	300
	ASSOCIATE PROFESSOR	x_{24}	300
	FULL PROFESSOR	x_{25}	300
DEPARTMENT 6	JUNIOR RESEARCHER	x_{26}	150
	POSTDOCTORAL RESEARCHER	x_{27}	225
	ASSISTANT PROFESSOR	x_{28}	300
	ASSOCIATE PROFESSOR	x_{29}	300
	FULL PROFESSOR	x_{30}	300
DEPARTMENT 7	JUNIOR RESEARCHER	x_{31}	150
	POSTDOCTORAL RESEARCHER	x_{32}	225
	ASSISTANT PROFESSOR	x_{33}	300
	ASSOCIATE PROFESSOR	x_{34}	300
	FULL PROFESSOR	x_{35}	300
DEPARTMENT 8	JUNIOR RESEARCHER	x_{36}	150
	POSTDOCTORAL RESEARCHER	x_{37}	225
	ASSISTANT PROFESSOR	x_{38}	300
	ASSOCIATE PROFESSOR	x_{39}	300

Furthermore, it is assumed that junior researcher and postdoctoral researcher can only provide tutorials, while assistant professor, associate professor and full professor may provide both lectures and tutorials. It is considered a scenario where an assistant professor provides lectures for 1/3 of his workload and tutorials for the rest of his/her total number of teaching hours; associate professor provides lectures for 2/3 of his/her workload and tutorials for 1/3 of his/her workload, while full professor only provides lectures.[1] There is a total number of 180 final theses and 80 master theses per year. Only assistant professors, associate professors and full professors may mentor final and graduation theses. Each of them should mentor a maximum of 10 final theses and 5 master theses. Also, it is important that at least one full professor is employed at each department due to quality of scientific and teaching process. In accordance with the information gathered the model of integer linear programming has been formed as shown in the previous chapter. The model has 41 variables representing the number of employees at a particular position. Its optimal solution is obtained by MATLAB and is presented in the Table 3.

Table 3: Optimal solution – scenario 1

Variables	Optimal solution	Variables	Optimal solution	Variables	Optimal solution
X_1	6	X_{15}	1	X_{29}	6
X_2	1	X_{16}	3	X_{30}	4
X_3	0	X_{17}	2	X_{31}	0
X_4	1	X_{18}	0	X_{32}	3
X_5	9	X_{19}	3	X_{33}	0
X_6	4	X_{20}	4	X_{34}	0
X_7	3	X_{21}	10	X_{35}	4
X_8	0	X_{22}	0	X_{36}	2
X_9	3	X_{23}	0	X_{37}	3
X_{10}	7	X_{24}	10	X_{38}	0
X_{11}	6	X_{25}	5	X_{39}	3
X_{12}	0	X_{26}	3	X_{40}	4
X_{13}	2	X_{27}	4	X_{41}	5
X_{14}	4	X_{28}	0	z*	1696070,24

Let us consider another scenario where associate professors at a full workload only provide lectures. The solution to a thus formed problem is provided in Table 4.

Table 4: Optimal solution – scenario 2

Variables	Optimal solution	Variables	Optimal solution	Variables	Optimal solution
X_1	5	X_{15}	1	X_{29}	6
X_2	2	X_{16}	2	X_{30}	1
X_3	0	X_{17}	4	X_{31}	0
X_4	9	X_{18}	0	X_{32}	3
X_5	1	X_{19}	5	X_{33}	0
X_6	0	X_{20}	1	X_{34}	3
X_7	7	X_{21}	10	X_{35}	1
X_8	0	X_{22}	0	X_{36}	6
X_9	8	X_{23}	5	X_{37}	0
X_{10}	1	X_{24}	9	X_{38}	3
X_{11}	3	X_{25}	1	X_{39}	4
X_{12}	2	X_{26}	6	X_{40}	1
X_{13}	4	X_{27}	2	X_{41}	5
X_{14}	2	X_{28}	3	z*	1588450,1

[1] Presently, average gross salaries by teaching positions in Croatia are as following: junior researcher (8.626,41 HRK), postdoctoral researcher (11.330,42 HRK), assistant professor (13.240,38 HRK), associate professor (14.982,54 HRK), full professor (18.251,15 HRK), lecturer (10.396,98 HRK).

The total number of employees in the first scenario is 125 and 126 in the second one. Even though the number of employees in the second scenario exceeds the number of employees in the first one, the total gross salaries expenditures is lower and amounts to $z^* = 1588450{,}1$ HRK. The main reason is that the first scenario corresponds for 38 full professors while the second scenario for only 8 of them. The present situation at the observed Faculty is notably different from the optimal allocation obtained by the model. The number of teaching and researching staff is considerably lower (total 84, among which only 6 junior and postdoctoral researchers). However, total gross salaries expenditures are roughly equal the amount obtained from the model (1.745.268,92 HRK). Additionally, it is important to mention that all teaching and researching staff at the observed faculty is currently work loaded with 20% above the regular number of teaching hours as well as the Faculty employs considerable number of external associates in order to fulfil all teaching requirements.

6. CONSLUSION

Summarising previously stated results, it can be concluded that possibility for advancing HRP within Croatian higher education system exists. Proposed model and results suggest potential of employing higher number of teaching and researching staff that will be less work loaded in teaching and have more time for other aspects of scientific research and dissemination, but with similar salaries expenditures. There are different positive aspects of human resource allocation obtained by model, such as requirements for new employments within high education system (preventing young educated people to emigrate), lower teaching workload and greater opportunity for scientific research and proposals. Disadvantage of the model is possible slower transition (promotion) between different teaching and researching positions. Finally, it is important to stress that proposed model incorporates constrains only corresponding to work with students, not taking into account constraints related to scientific research, which should be understood for our further work. Also, in future human resource allocation problem can be observed applying particular multicriteria programming model.

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BUSINESS CASES AS SCENARIOS IN THE FRAME OF INTEGRATING CASE METHOD AND DRAMA TECHNIQUES IN TEACHING ENGLISH

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ABSTRACT

This paper presents some contributions of using business cases as "raw materials" for "Drama in Teaching" method of English teaching in economic schools. It shows that large HBS-format cases could serve as scenarios well suited for triggering communicability, imitativeness, and creativity of students and also for enriching their professionally-oriented English vocabularies. This account is based on an initial experience of including dramatized cases in Business English classes. These theatricalized cases compris business situations with implicit/explicit problems to be resolved by students (e.g., playing a role of consulting agency). Teaching/learning efficiency and effectiveness achieved by the said method are assessed versus outputs of "non-case" referent groups and by interviewing participants of experimental "HBS-case format" ones. Formal prerequisite for this phenomenon is increasing number of communicative links on the way from passive to constructivist method. This way is logically and historically considered. While assessing students attitudes to such way arranged workshops it is disclosed that they are attractive not for all students (and teachers). The poor level of initial relevant knowledge of participants is the reason. This paper highlights that the "Drama in Teaching" method is not so often applied today in Russian economic higher schools than abroad. However, the said method permits to increase a formal in-class learning time budget due to out-class networking students. Besides, the said method could be considered as a very perspective one not only for developing communication skills in English for future managers but for improving teaching/learning mainstream special disciplines (management, marketing, logistics, etc.) where signs of the " pedosynergy effect" are revealed.

Keywords: *business cases, drama in teaching, teaching-learning methods (passive, active, interactive, constructive), pedosynergy effect*

1. INTRODUCTION

English has factually been taught in Russian universities as the most common foreign language since the end of the 2WW. Besides, in the post-Soviet period English has become the well-used medium of teaching in advanced Russian business schools and economic universities. Since the 1990s, both subjects of the present paper – teaching English in Russia (Timin and Mileyeva, 2014; Proshina, 2016; Teaching English in Russia..., 2017) and teaching management/economics in English in Russia (Wilkins and Urbanovič, 2014; Legasova, 2015; Rubtcova et al., 2016) – have attracted a great attention of both English Dpt. teachers and students of the said educational organizations. Sometimes, while including "real" English, some invited lecturers of Business Dpts. were involved to teach in English Russian students (Students…, 2015). However, the main part of courses taught in English was delivered by Russian instructors having different levels of proficiency in English. For example, there were

85 courses delivered in English for BA students in Graduate School of Management (GSOM) of St. Petersburg University in 2016-17 a.y. 17 of them were delivered by invited foreign lecturers. Not all of them had English as a mother tonge (e.g., there were instructors from Finland and Turky). The unique for Russia the GSOM's "Master in Management" Programs (MIM) – having now 23rd rank in the prestigious ranking FT Global Masters in Management 2017 – have been offered in English since 1997. The MIM courses were delivered by both Russian and foreign instructors but mainly by Russian ones. These programs were delivered and assessed according to the ECTS, that provided international comparability of educational programs, facilitated international mobility and academic recognition of GSOM's students. Besides, MA students have been given a unique opportunity to take an internship/summer employment experience at one of foreign corporate partners of GSOM (See detailes at www.gsom.pu.en). The case of GSOM was not a unique one in Russia. For comparison, St. Petersburg State University of Economics (SPSUE) where educational internationalization has been begun later arranged - in collaboration with University of Anger (France) - the Double Degree Master Programs taught in English (http://en.unecon.en). Such programs were very attractive for students in the light of expected searching for their future jobs and pursuing careers. Therefore, – though only two Russian schools were mentioned herein due to the fact they were subject of this research – teaching in English has become a definite aim of internationalizing education for many advanced schools of Russia (Abramova et al., 2013; Voyevoda, 2013; Inozemtseva, 2014) Besides, such a teaching in English was of interest for international students from many non-Anglophone countries (English..., 2017). The reason for this global phenomenon was thy role of contemporary English as the real lingua franca (Hülmbauer et al., 2008; Pilkinton-Pihko, 2011; Cherenkov, 2011) for everybody involved in international business and science regardless of national belongness of his or her employers (entities). Due to this fact an artificial or adopted bilingualism has become the reality not only in the EU but in Russia (and further on the Globe). Without any doubt, this "plus English bilingualism" was a significant asset for Russian students searching for jobs on the global as well as domestic labor market. Especially, if these students were going to work in international companies, joint ventures or, simply, had business communications with overseas counteragents. The main flow of international business knowledge (perhaps, except exclusive Russian law norms and rules) was presented in English and contemporary advanced Russian business schools have arranged delivering lectures and moderating work-shops including foreign visiting lecturers and/or English-speaking Russian ones. While internationalizing Russian higher education system the share about 30% for invited foreign instructors was declared as a desirable performance index. Prestigious Russian universities have set very high requirements to communicative competence in English. For example, in accordance with admission rules of National Research University "Higher School of Economics" (Moscow), non-native English speakers have been obliged to submit TOEFL, IELTS, or CAE test results (from no more than two years prior to the the application submission) since 2012 (National…, 2017). The communicative concept of teaching English (Jendrych, 2011; Ahmad and Rao, 2013; Ibrahim and Ibrahim, 2017) dominates now in many Russian universities (Kryukova, 2011; Ryabukhina, 2013; Mikov, 2016) and this pedagogical view is fully shared by the authors. An ever-increasing number of countries have considerd the English language as an important skill set for the develoment of international business communications and their educational systems were rearranged to be "internationalized". Such "internationalization" has become one of newly-declared pillars in Russian Higher School. Hence, teaching business discipline in English has received a very wide development in advanced Russian economic universities and business schools for recent years (Legasova, 2015); former closed cities included (Chukhlomin and Chukhlomina, 2013). The same situation took place in national parts of former Yugoslavia (Bal, 2012) and in so-called newly independent countries (NIS) that were formed as a result of

dissolution of the USSR in the early 1990s; then, in 2013 there were approximately 1,000 newly opened business schools with teaching in English in the NIS (Keiser, 2013). Russian experience in teaching in English demostrated many problems similar to ones of NIS countries (Tender and Vihalemm, 2009; Zaščerinska, 2011; Tarnopolsky and Goodman, 2012). As it was many times shown (Mainela et al., 2005; Mattisson, 2010; Pilkinton-Pihko, 2011; Reddy and Phil, 2012), the natural and unavoidable consequence of the total globalization was creating not only demand on English but also multiple problems of teaching in English in non-Anglophone countries. However, while narrowing the said set of problems we had to be focused herein on existing rather low assessment of proficiency in English: "inadequate language skills and the need for training of indigenous staff and students" (Coleman, 2006). It should be clear, that not only a students' level of English knowledge but also an instructor's level of the "teaching in English" skill was crucial in achieving necessary level of learning business discipline delivered in English. When expecting the future benefits for students included in business education programs delivered in English it should be taken into account that the initial period of implementing such programs had a high probability of deteriorating their performances. A decrease in the content quality due to was found (Gustafsson and Räisänen, 2006, p.11). Such scarce proficiency could be found in many Russian economic universities and business schools, where decreasing education quality was noted (Frolov, 2011). And, the farther from metropolitan regions (Moscow and Saint-Petersburg), the less these proficiencies were. As a result, there was a share of pessimism concerning English as a carrier in delivering business disciplines in non-Anglophone countries: "This is true that a master program in English is ranked more higher on the market. However, whether this program is the best one in terms of the quality of education?"(Currivand and Truchot, 2010). Therefore, some benefits and caveats could be revealed in teaching business disciplines in English. And the teaching quality could suffer from a poor communication channels arranged where a knowledge carrier was presented by English but neither sender (instructor) nor receiver (student) were native Anglophone persons. The very attractive way to ameliorate the situation could be found in arranging a "two-way trafic" between instructors and students. Consequently a serious shift toward active-interactive-constructive pedagogical technologies applied to different disciplines was revealed (Chi, 2009; Menekse et al., 2011). Striving to inspire students' learning activities and to help students to overcome their anxiety about learning and using English, teachers have developed a set of innovative pedagogical approaches to teach English (sometimes called now as Globish having extrimely reduced vocabulary – about 3,000 items). The said approaches differed from simple using the multiple hi-tech innovations of the Digital Era (off-line multimedia teaching-learning facilities, adjusted to English web-sites, MOOCs, SKYPE, searching machines, Wiki facilities, Web-Quests, blogs, etc.). These pedagogical innovations were based on smart combinations of newly designed and/or well-forgotten old pedagogical decisions (Cherenkova, 2006, 2017) and could be classified as low-tech innovations (Cherenkov et al., 2014). However, taking into account – as it was said above – that the main part of lectures and workshops have been delivered/moderated in economic universities (schools) by such domestic instructors to whom English was not their mother tongue a common problem could be faced. This one was the quality of communication in the "instructor⇒students⇒instructor" channels. As it was well-known (Mossop, 2007) quantifying the quality of translation was rather hard to be executed. A fortiori, quantifying the quality of knowledge transfer (as in the particular case of teaching-learning in English) was expected to be a more sophisticated task (Holi and Wickramasinghe, 2008). However, the problem of quantification concerning communicative competency in English of future international managers (Cherenkova and Cherenkov, 2015) was aside from the mainstream of the present paper. The main problems for teaching English as well as teaching in English in Russia have been inherited since the Soviet times when obsolete English manuals and "artificial" newspapers in English (e.g., Moscow News)

presented (even in Russian higher school) factually the "torture" with English grammar, restricted vocabulary and primitive talking topics (e.g., "My family", "My working day", etc.) for the prevailing number of English learners. Naturally, there were excellent specialists in English but they were mainly concentrated in the capital's universities and special schools (e.g., under KGB, GRU or MID – Ministry of Foreign Affairs). However, in USSR, international interpersonal direct contacts were not countenanced by the State. Therefore, communicative approach to teach English (Coskun, 2011) was far that time from acquiring skills in teaching-learning English that were necessary to understand the sense and scope of developing technical sciences abroad. The canvas of problems in teaching English has been drastically changed since 1991. The crash of the state monopoly on managing international business created a huge demand on the Russian labour market for specialists who knew English and could speak fluently in English (communicate both oral and in writing). The following items were identified in the teaching English in the new socio-economic and political environment of Russia. Firstly, the main part of widely distributed and commonly used manuals of English and other corresponding teaching materials created in the Soviet period were obsolete and far from "real" English used in any of Anglophone countries. In addition, the highest possible score of so-called Unified State Exam (USE) has been become the main decisive condition of admission to universities in Russia since 2009. Unfortunately, English was not included in the list of mandatory USEs. This peculiarity minimized an attention to teaching/learning English in secondary school and, therefore, lowered the level of English competency of enrolees. Secondly, the eternal problem of teaching continued to exist - limited time budget for English in curriculums for economists. First problem has been step-by-step resolved due to imported original English textbooks (e.g., Market Leader) and more or less innovative "Made in Russia" textbooks (e.g., Cherenkova et al., 2013; Levchenko, 2016). Another additional and substantial contribution in resolving the first problem was made by explosive growth of non-official international interpersonal contacts and searching information abroad. At last, the Internet capacities and resources have played a role of a powerful booster for accelerated learning/teaching English (Joshi and Kaur, 2011) from viewpoints of stimuli to learn English as well as possibilities to learn-teach English. The second and "eternal" problem had not got a positive decision for English teachers due to the fact that English has been traditionally considered as a second-tier discipline in non-philological schools. The only way out from this insolvable situation was to get involved in more or less innovative pedagogical technologies, such as active-interactive-constructive ones (Chi, 2009; Menekse et al., 2011). Such technologies in any way guided to intensification of learning-teaching processes and could be considered as a "hidden increasing of a working time" (by K. Marx).

2. BRIEF LITERATURE REVIEW AND RESEARCH METHODOLOGY

Over the past decades the considerable attention has been given to "active teaching/learning" (Lantis et al., 2011; The State..., 2017) as well as "interactive teaching/learning" (Yakovleva and Yakovlev, 2014) in different domains of academic disciplines (English included). Contemporary Russian pedagogical and "near pedagogical" domain of scholar works has been overwhelmed by articles, textbooks, and monographies having these terms if not in their titles but in the body of the said works (e.g., Suvorova, 2005; Chicherina, 2008; Gushchin, 2012; Khilchenko and Olar, 2014). These two terms have become in Russia for two last decades the real "buzzing words" were repeating time and again as Buddhist mantras. We revealed the similar situation abroad (Chi, 2009): "The... two terms—active and interactive [teaching-learning - *authors*], have received much less attention in terms of explicit definitions. Instead, they are often used either synonymously". Russian sources – relevant to active versus interactive teaching discussions – also did not show any explicit distinctions between these two terms. This terminological confusion was rather well-illustrated by following two definitions.

The first term's definition (Kruglikov, 2013) of tipically tautological nature said: "[active model of teaching - authors]" is characterized by active independent actions of a learner in learning the teaching materials [two words were italized by authors]". The second term's definition (Privalova, 2014) – "Interactive methods are based on interaction principles, learner' activity, using team experiences, and required feedback [two words were italized by authors]" – was of the same nature that the first one. Thus, the ambiguity of definitions existed both in Russia and abroad. For example, it was difficult to understand why the following statement – "Active learning means that students are working together, and with the instructor, to achieve educational objectives [two words were italized by authors]" (Lantis et al., 2010) – was attributed to the active methods but not to interactive ones (compare Figs. 2 and 3). Leaving similar "semantic research" of previous section for the Laputian Academy of Sciences, we proposed to classify these pedagogical methods according to the number and purposes of the instructive and knowledge exchange links between members of teaching-learning community (table 1). In addition, taking into account the fact that video channels were much more wider then verbal ones, we decided to represent the typology of teaching-learning methods with help of series of pictographic flowcharts (Figs. 1, 2, & 3).

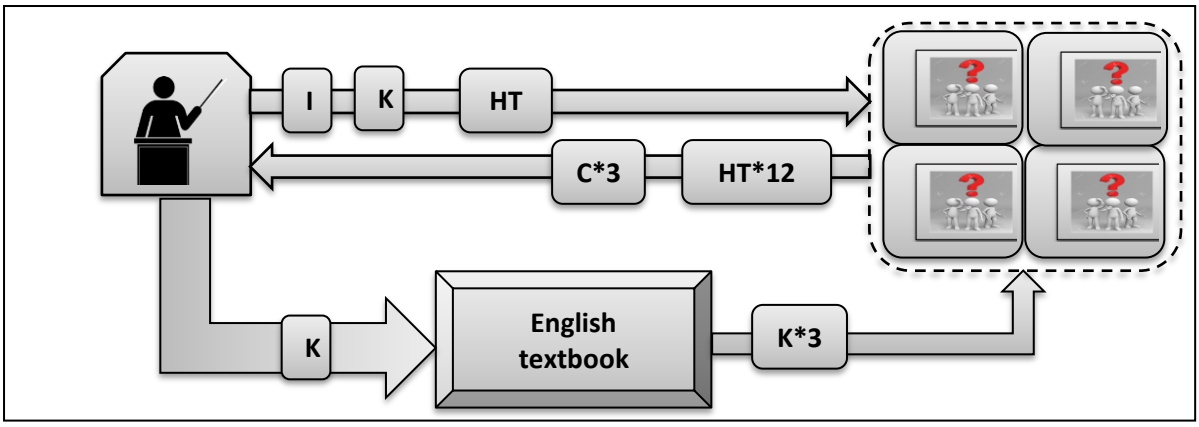

Figure 1: Simplified flowchart of traditional or passive teaching English (by authors)
LEGEND: I - instructions; K - quantum of knowledge; HT - home task; C - consulting.

To complete the picture we have decided to begin the said series from the traditional or passive teaching method (Fig. 1). Despite the existing and rather stable cumulative triad of pedagogical methods mentioned above – "active-constructive-interactive" (in terms of Chi, 2009) – we have decided to shift the constructive methods to the last but not least position in this evolutionary raw of teaching-learning methods.

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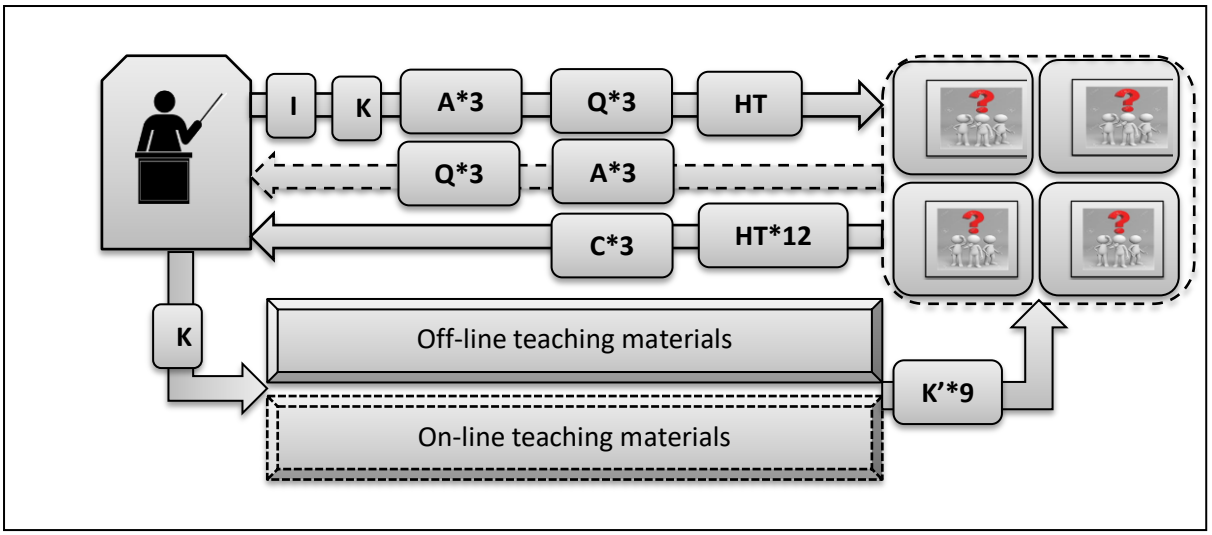

Figure 2: Simplified flowchart of active teaching English (by authors)
LEGEND: I - instructions; K - quantum of knowledge; K – extended quantum of knowledge; HT - home task; Q - questions; A – answers. C - consulting.

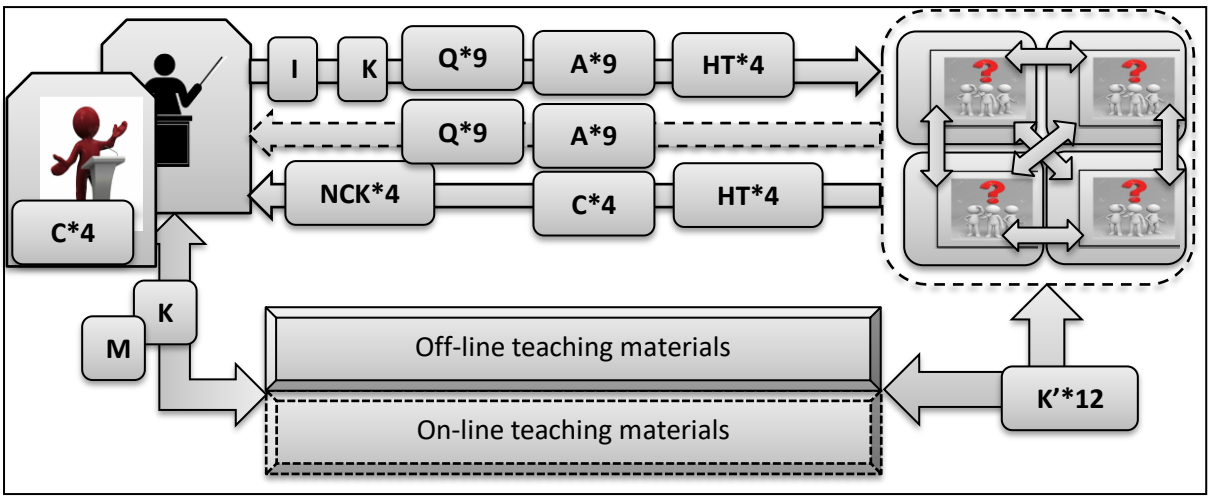

Figure 3: Flowchart of interactive (constructivist) teaching English (adopted by authors to using drama technique supplied by business cases used as scenarios)
LEGEND: I - instructions; K - quantum of knowledge; K' – extended quantum of knowledge; NCK - newly created knowledge; HT - home task (cases to be analysed / modernized / presented); Q - questions; A – answers; C – consultation, M - moderating.
NOTE: Constructivist approach is presented by the replacement of the "instructor" pictogram with the "moderator" pictogram and labelling the moderating process with letter "M".

Whereas the constructivist method, in our mind, belonged to the alternative pedagogical dyad – "instructive versus constructive" Dubs, 2004) – we have included the said method of teaching as the most fitted to the goals and objectives of the drama teaching based on business cases as scenarios. Our decision was formally based on the fact that the constructivist teaching method as one absorbing the tools of other ones mentioned herein (Fig. 4.) has included as many as possible information transfer channels presented on Figs. 1, 2 & 3. Therefore, and it was the most important factor for implementing the drama teaching (Cherenkova, 2014), the constructivist method appeared the most appropriate one for including business cases in

teaching English. Students taught by the said method relied factually on some form of guided discovering where the instructor avoided most direct instructions and attempted to lead students through questions and guided activities to discover, discuss, appreciate and verbalize the newly creared knowledge (or, in terms of present article, case decisions).

Table1: Number of communicative channels serving to teach English depending on teaching method applied (by authors)

Teaching method	Kinds of links forming multichannel communicative system providing teaching-learning processes								
	O2O links	O2M links	M2O links	O2M* links	M2O* links	Outer-class	Intrateam	Inter team	Total
Passive	**3**	**4**	**12**	**na**	**na**	**3**	**na**	**na**	**22**
Active	**3**	**10**	**18**	**na**	**na**	**9**	**na**	**na**	**40**
Interactive	**4**	**24**	**26**	**4**	**4**	**12**	**3**	**6**	**83**
Conctructive	**8**	**28**	**30**	**4**	**4**	**12**	**3**	**6**	**95**

LEGEND: **O2O** - ”one-to-one”; **O2M** - ”one-to-many”; **M2O** - ” many -to- one”; * - by team consultation.

N.B.: nubers of liks are disputable and depends on specific in-class arrangements but, in our rmind, could be used to assess an intencity of instructor (moderator) communications.

Figure 4: Primitive model of nested methods of teaching-learning English (by authors)

On the way to apply to using business cases as scenarios for drama teaching the chain of quasi-performance approaches was tested and assessed. First of all, we have arranged so-called ”Cross-Team Interactions” (Ancess and Wichterle, 2001). In English classes arranged like a room of interactions students visited each other inspiring small talks and sometimes serious discussions. To manage this ”free style” process and make it closer to our standard teaching goals some topics from Market Leader were used (e.g., from modulos Organization, Ethics). In addition, students proposed their own topics (e.g., ”Reverse Effect of Anti-Russian Sanctions”. This self-extention of topics was enthusiastically met by students. At the end of semester, teachers of English Dpt. practicing this approach have revealed a significant growth of communicative competencies of students engaged in the said interactions. It was noted that students got not only advanced communicative skills but competecies of business ethics. However, despite the certain degree of freedom in choosing topics and really interactive arrangements this approach conserved many features typical for a passive learning. Kevin Yee from the University of Central Florida provides concise descriptions of 186 (sic !) different approaches to interactive educational formats (Interactive…, 1993-2005). A couple of them were restricted by in-class space of communications and number of interacting students. Next step toward enriching English lessons was in organizing ”Round Tables” (Student-to-Student..., 2017) where not 12 students (standard size of group) but a community numbering up to 50 students and 2-4 teachers was collected (one-two times per semester) for revealing and clearing items of common and significant topicality. It was noted the ”Round Table” format gave a lot for forming an ”interractive space” (Whiteside and Fitzgerald, 2005) where members of community were vis-a-vis physically. According common teachers' opinion these round tables created the competitive environment inspiring students to enlarge their vocabularies, apply to outer sources, and show a high level of creativity.

The main caveat therein was found in the problem to built-in this format in the chain of regular lessons corresponding to the standard curriculum and to select a topic of great interest for all participants of round table. A fast-growing innovative option of on-line interactive spaces is presented in Internet social networks (Kavaliauskienė, Ashkinazi, 2014) being an important subject for practices and research. Further, taking into account main economic specialization of our students (e.g., in Marketing Management or HRM) and corresponding quantum of knowledge (partly learned down in English) acquired at Mainstream Special Dpts, it was decided to use the "Project-Oriented Learning" format (Kim, 2015) that, in contrast with the previous one, permitted students to use more speciality-oriented English and show appropriate competencies. A promissing phenomenon was revealed. Students often performed tasks easier and with great willingness due to cognitive roots of these tasks stemmed from special disciplines. Students appeared capable formulate by themselves – after prelimenary discussion between them and teacher – such topics that were more interesting for further discussion. Teachers had to arrange the process in time and define partial tasks, stage by stage: 1) conceptualizing and formulating the problem, proposing working hypotesis, and forecasting outputs expected – their personal viewpoints and project drafts have been clarified; 2) carrying a research – skills in team working and culture of interpersonal relations as well as critical thinking were elaborated on the basis of knowledge of mainstraem or professional disciplines; 3) presenting the research project – outline of the project, performance of effective presentation, and personal self-presentation were shown during presentation in addition to demonstrating their competency in English. As a result, a higher quality change in teaching-learning English has been done. Students have been taught to learn while in the case of traditional or passive teaching they received a quantum of English knowledge memorized to be used in the right form, context, and time. Not only students but teachers received a new knowledge corresponding to the project under consideration. We understood that many benefits of interactive approach – in terms of efficiency and effectiveness of teaching-learning English – were achieved in the frame of Project-Oriented Learning. However, English teachers had not an intetion (and, to be honest, a sufficient knowledge) to substitute instructors of Mainstream Dpts and design framework and content corresponding to real business situations. Therefore, we had to make the next step in implementing innovative teaching technologies or, in other words, to use professional-goal-oriented constructivist teaching-learning approach (Fig. 3). As it was logically and practically defined by authors, business cases were well-fitted for the purpose of implementing this constructivist approach to teaching-learning English. Next step was made toward implementing the drama approach (Zafeiriadou, 2009; Albalawi, 2014; Cherenkova, 2014). Figuratively speaking, it was necessary to create an "in-class theater" with an instructor as producer-scenarist and students as actors-critics-spectactors. In our mind, this theatrical decision was best suited to the implementation of constructivist approach. Dramatizing English lessons was rather well-developed in Russian elementary and secondary school where fairytales and short stories were successfully theatricalized (Shishkina, 2007). This tradition was continued in the higher school but mainly in advanced universities. Therefore, on the way toward improving efficiency and effectiveness of teaching-learning English we came to necessity of using the dramatized business cases. As a result, the combination of drama technique and case method gave to English teacher/learners a possibility to get all features of constructivist teaching-learning, namely (Langan et al., 2009), 1) collaboration (see corresponding links on Fig. 3); 2) deep learning (competitive necessity to access to outer on-line/of-line resources); 3) reflection (encouraging students to connect the English course content with their prior knowledge and personal experience in using English); 4) engagement (discussing and building a point of view by means of feedback with teacher and dialogue during preparatory and workshop activities); and 5) caring (skills of attending and listening each other). Fortunately, the authors of pesent paper represented a kind of "family joint venture" having simultaneously competencies of English and Marketing Dpts due to their real academic job positions. Therefore, it was an unique and

lucky case to arrange the constructivist teaching-learning (Gray, 1997) by integrating two methods – dramatization and case study (Daly, 2002; Jendrych, 2011; Popescu, 2016) – in English classes. Our way leading to constructivist methods in English Dpt. was briefly described above. However, not everything in the classroom was as smooth as on paper. For example, such problem was shown (Wang, 2011): "The raising of learner autonomy is not always pure joy and fun. It involves risks. Some conflicts among the students or between teacher and the students may – and almost inevitably will - develop." Hence, we had to moderate, gently and unobtrusively, the developing student creativity. It was for this reason that the business cases were chosen as guides to prevent deviations from teaching-learning goals of English Dpt. and possible dictortions of relevant professional reality built in the said cases. As it should be understood, such disctortions could not be revealed in most cases by English teachers. Everybody had to do its own job and did it well. We have been moved toward a full-scale integrating the toolkits of both drama techniques and case studies since 2013. On one side, the English Dpt. of SPSUE that long time implemented the communicative approach to teaching English has passed all stages of intensification of teaching English described above. On the other side, GSOM faculty has created, published, translated into English and enregistrated (mainly in ecch) nine case collections that had more than 120 items in total by Spring 2017 (www.case-center.ru). The transition from interactive teaching English to constructivist one (Tarnopolsky, 2012) using business cases (Dinapoli, 1999-2000) – arranged and assessed by authors (Cherenkova and Cherenkov, 2014) was based on two pillars: 1) the drama method of teaching English (Chauhan, 2004; Teaching..., 2009; Albalawi, 2014); 2) the case method in English classes (Tarnopolsky, 2012; Zheng, 2014). The use of case studies in the international marketing management classroom had an active teaching practice in GSOM. As it was well-known the HBS was a pioneer in this method of teaching. The HBS-format cases were rather long and saturated by relevant data. So, they represented, in our mind, the best scenario or, better to say, "raw material' for scenario to stage a business performance in English class. These cases had a hook or intrigue in the very beginning that served as a good stimulus for students to develop and apply their team working and critical thinking. Then, each case was supplied with Teaching Notes (TN) or Instructor's Manuel (IM). The content of this usually detailed document helped English teachers to overcome their insufficient proficiency in mainstream disciplines. Standard questions supplied in TN or IM with corresponding theoretical background and expected patterns of answers were also of great use. However, the HBS cases as well as GSOM made ones had not only benefits but some caveats for teaching English. Number of characters in the "case plays" under consideration was often reduced to one protagonist. But the number of members in small student teams was usually 3. Hence, we were forced to "invent" and include new relevant characters in cases (such as, consultant, lawyer, journalist, or friend more skilled in the Art) or recommend to students to do the same. Then, some topics (e.g., auditing, financing, and accounting) were too difficult for English teachers to dramatize corresponding cases and moderate presenting, reviewing, and discussing managerial decisions of problems found in these cases. As a result, depending on the personal authors' knowledge, we stopped on the topics related to International Marketing Management, Business Communications, and Business Ethics. Besides, it was absolutely necessary to select interesting and well-understood for students cases. For example, the popular "Not-So-Wonderful World of Euro Disney" case. However, Internet was overwhelmed with previous student decisions concerning the most popular cases (PowerPoint included). We applied so-called "case transplantation method" to avoid boring copying and possible student plagiarism. Briefly, the essence of the said method was to transplant the business situations described in the case for one national marketing environment into another one. There were a lot of countries on the Globe and we found a good medication against caveats mentioned above. Finally, the last but not least caveat was met. As we defined above, an intensification of teaching-learning

processes was a hidden increasing of working time. Good skill in English communications was a compensation for the intensive student work. But it was not the case of teachers. As a result, dramatizing and implementing business cases in the frame of drama method without compensation could be of interest for PhD makers or pedagogical enthusiasts. We were the latter.

3. SOME ARRANGEMENTS FOR USAGE OF DRAMA TECHNIQUE WITH BUSINESS CASE SCENARIOS

The standard size of groups of English in SPSUE was 12 students. The groups were divided into teams of four students each (Fig. 5). There were two main options how to work further.

First option: Every team should read and analyze the case (A, B, C or D) selected and received by e-mail about two weeks in advance. The teacher assigned the said cases (A, B, C or D) for each of 4 teams in such a way that each team received its own case. A Team-Presenter (e.g., Team A – Fig. 5.) analyzed the case problems in accordance with the questions formulated at the end of the case under consideration. This team used information found in the body of the said case and in TN or IM included. Sometimes, relevant additional information could be included. This additional information was found by the references to the off-line/on-line sources containing relevant materials. Then, not later than 72 hrs. before the presenting date (PD), the Team A sent its outputs (e.g., in form of such a document as "Memorandum of Working Team" or "Report of a Consulting Agency") to the Team-Reviewer, playing a role of a Board of Directors or simply Boss. The Team-Reviewer (e.g., Team B – Fig. 5.) after having analyzed the document said above set out its point of view (e.g. in form of a Letter of Advice). The rest of teams (C & D – Fig. 5.) were also put in picture to be ready to take part in common discussion at the PD day. However, they did not have to be passive "spectators in the theater". This process required to create a set of information exchange links (Fig. 5) during preparatory period (up to PD day - 36) as it should be in the frame of constructivist approach. Naturally, at the date of workshop or "performance" (PD day) all students (four teams) had to be well-prepared for the performance upcoming. At the date of the "premiere" (total time budget = 90 min.) the Team A (after opening words of moderator: 1-10 min.) presented its business decisions (outputs of corresponding analysis) supported by PowerPoint-facilities. Team B, from time to time, was included in a constructive dialogue with presenting Team A (11-40 min.). Excluding any disorder, Teams C & D had the opportunity to express their viewpoints – but only after the end of the said A-B dialogue – during the common discussion (41-70 min.). When all decisions were discussed the instructor-moderator had to highlight the merits and demerits of the case decisions suggested by the Team A, discussed by all community and corrected by the instructor who was actually dealing with the case. The last period of time (71-90 min.) served to answer possible questions and put the task for the next workshop. In the best case, this chain of events could be repeated four times per semester with different Presenter-Reviewer couple combinations (B & C, C & D, and D & A, respectively). This option was assessed as more suitable for newly engaged teachers.

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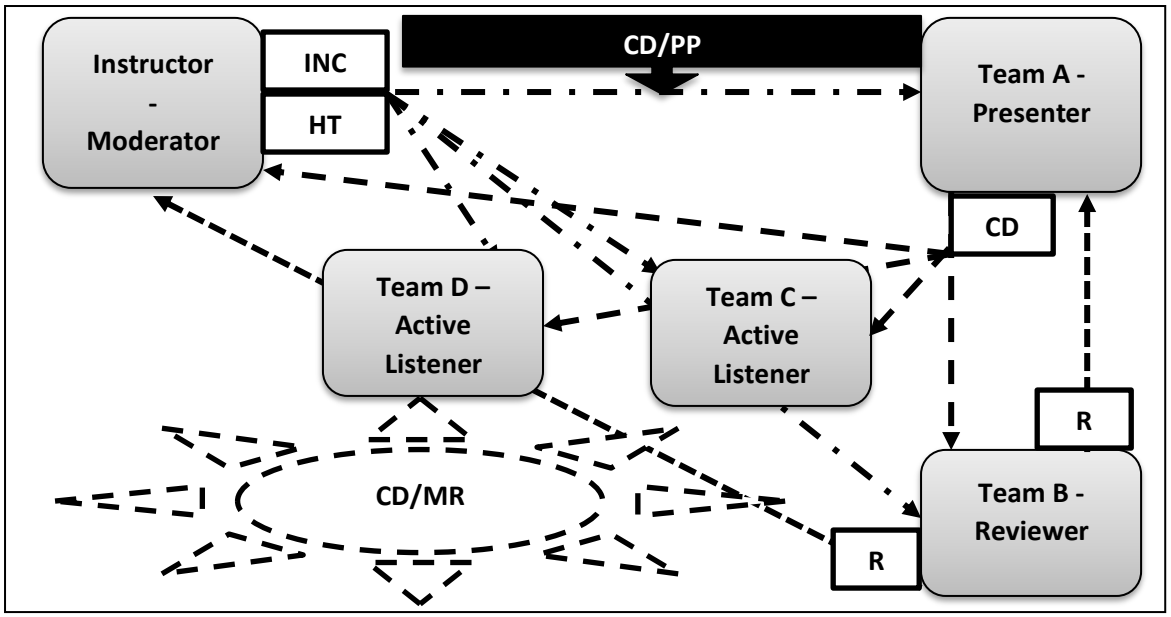

Figure 5: A communicative arrangement for using drama technique with business cases as scenarios (by authors)

Legend:

CODES	COMMUNICATIVE EVENTS	DEAD LINES
HT	Issuing home tasks: business cases supplied with Teaching Notes	**PD**- 2 weeks
CD	Disseminating the Team-Presenter's case decisions to be presented and discussed at the date **PD**	**PD** – 72 hrs
R	Team-Reviewer sends its review on the Team-Presenter's case decisions	**PD** – 36 hrs
CD/PP	Team-Presenter presents case decisions supported by PowerPoint.	**PD**
CD/MR	Common discussion moderated and resumed by Instructor	**PD**
INC	Instructions for the next class (in writing)	**PD** + 48 hrs

Second option was more sophisticated and difficult for the Team-Presenter. The interaction scheme was almost the same (Fig. 5), but the stage of preliminary presentation of the review to the Team-Presenter (**RP**) was excluded. Hence, the Team-Presenter was forced to defend its case decisions under criticism of the other three teams. The next outline of the equal in duration workshop was proposed: 1) opening words of moderator (1-10 min.); 2) presenting the case decisions by Team A (11-30 min.); 3) criticizing Team A's case decisions by Teams B, C & D (31-40, 41-50 and 51-60 min., respectively); 4) common discussion (61-70 min.). Last 20 min. were for answering possible questions and putting the task for the next workshop.

4. OUTPUTS, LIMITATIONS, AND FURTHER RESEARCHES

The English Dpt. in SPSUE - the main object of the present research – managed teaching English in 56 student groups belonged to 9 different schools. However, despite the fact that communicative approach has been dominated among teachers since the date the English Dpt. was organized and the main part of its teachers practiced the more or less innovative methods described above, the constructivist approach in full scale has been begun to use for last three

academic years[1]. Besides, only two teachers expressed willingness and consent to implement the constructivist teaching in their classes for the same period. We had 2 "constructivist groups" per each semester. Therefore, the total of "constructivist students" for the last three year was about 120. Why not 144 (2*12*6 = 144)? Because some students left the "drama-case" experiment due to their incapacities or other private reasons. The cases used as scenarios were extracted from International Marketing. We used mainly cases about entry modes extracted both from corresponding textbooks (HBS format) and GSOM collection. It was defined that non-native but lexically and grammatically correct language of GSOM cases was not an obstacle to use them. Ultimately, the English of student presentations, teachers' instructions, and common discussions at workshops was not-native too. Finally, English as lingua franca (ELF) widely used in international business was of the same nature. Outputs of our constructivist drama-case experiment were assessed with help of semi-structured anonymous interviews in writing. As it was clear a statistical processing the data received was not applicable. However, a couple of positive outputs were definitely revealed. First, the formal average grading of student English knowledge (range of grading in Russia: 2 - 5) for "constructivist students" was 18-24% upper than for reference groups have been randomly selected. Second, we have received a chance to test our "pedosynergy hypothesis" (Cherenkov and Cherenkova, 1997). Indeed, the referent groups that were from international marketing concentration but not engaged in the constructivist drama-case experiment showed lower (-12-25%) academic performance than those ones who were involved in this experiment. Therefore, despite the limitations above, qualitative analysis made by independent (not involved in experiment) teachers of English Dpt. showed that "constructivist students were practically required to extract relevant information from a case under consideration and then fill in the remaining information using their imaginations, coupled with a logic of thinking acquired while learning mainstream disciplines. During preparatory work and corresponding workshops students created a plausible reality using case information. Preparing presentation of case decisions (Fig. 5) students behaved themselves as actors on the way of preparing their roles. The cases were used as scenarios that helped students to construct roles not only for protagonist but for other characters based on the information provided in the case (the playwright). The character building process was highly creative as in a theater. This fact gave a freedom for students who were in reality co-authors of the case-performance, but previously acquired knowledge and using the same cases in workshops managed by mainstream departments served a logical guidance to keep students in the frame of virtual but reality. At the end of the paper we would like to say that there was the most serious problem in a staging business cases that should be done in cooperation necessary to be arranged between English and Mainstream Depts. The case of the authors was rather exclusion than norm because it was presented as we said in the form of a peculiar "family business". Nevertheless, we saw the perspectives for this case-drama constructivist method and have decided to promote this concept and search for partisans among teachers practicing E2L, ESP, ELF and other English teaching formats/concepts.

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MANAGER'S AUTHORITY– THE EXPERIENCES OF POLISH MANAGERIAL STAFF

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ABSTRACT

The problem of an authority has interdisciplinary and complex character. The article's authors have adopted the disciplined perspective of management sciences. The aim of the research presented in the article is cognition of the meaning of authority assigned by Polish managers and identification of activites being done by the managerial staff to shape their professional authority. The realisation of this aim had involved carrying out the questionnaire study among the representatives of the managerial staff. The study sample numbers 60 people, therefore this is a pilot research and the results are treated as a ground for wording the hypothesis for further and developed research. Psychological interpretation of authority of a manager as a person with specified abilities and mental qualifications who commands respect and trust dominates among Polish senior management. They identify the authority more as source of managerial effectiveness than personal power. They strongly combine it with ability to build and support team's involvement. Two tendencies equilibrate in search of authority's genesis. On the one hand the respondents identify the authority with native qualifications typical for charismatic leaders. On the other hand they appreciate the function of professional knowledge and professionalism of management. The managers make out positive distinct relationship between manager's strong authority and management's effectiveness. They overlook the threats such as limit of subordinates' independence and creativity.

Keywords: *Authority, Management, Manager's authority*

1. INTRODUCTION

The problem of an authority has interdisciplinary and complex character. The article's authors have adopted the disciplined perspective of management sciences. Their studies are based on assumption that an authority can be analysed from the subjective view (who is the authority in certain community) and from the subject view (what traits and behaviours should characterised an individual so she or he can become and authority). The conceptions according to which an authority has social foundation because values, customs, power and faith vision accepted in certain community decide whether someone will be treated as an authority have been also analysed. In the study literature there are controversies which are being aroused by the value of manager's authority for team or organisation managed by him. It is indicated that it is a factor that significantly enhances the management's effectiveness. Simultaneously there is sideswipe about the fact that the leader with strong authority limits an autonomy and creativity of other team members. Big diversity of the conceptions of authority and its assigned value entitles to research this organisational phenomenon. The aim of the research presented in the article is cognition of the meaning of authority assigned by Polish managers and identification of activites being done by the managerial staff to shape their professional authority. The realisation of this aim had involved carrying out the questionnaire study among the representatives of the managerial staff. The study sample numbers 60 people, therefore this is a pilot research and the results are treated as a ground for wording the hypothesis for further and developed research.

2. LITERATURE REVIEW

The issues of authority is the problem that is often taken by researchers in works relevant to society's functioning. The authority, as phenomenon universal in time section as well as in spatial cross-section, is a subject of consideration of humanities and social science, for instance philosophy, ethics, cultural anthropology and management sciences. In the article the perspective of management sciences had been adopted because of the subject area of taken studies. The authority was a subject of consideration of many researchers. For instance Fayol, Follett, Barnard, Weber (Gupta, Gupta, 1992, pp. 287–289) have been engaged in this issue.
The following definitions of authority can be indicated (Rao, 2012, pp. 283–284):

1. Authority is one of power's legitimation types, warrant to call the shots or enforce the decision
2. Authority is a social acceptance of people controlling others
3. Authority is a person or an institution accepted as a source of reliable information about particular subject that enjoys confidence because of a professionalism, expert whose decision are treated as ultimate one
4. Authority is a charismatic person, free of doubts, who we are prone to succumb, obey and carry out the orders

These definitions show the existence of the following authority's dimensions: subjective (inner), subject (outer) and the authority understood as a social institution. Authority, as a person or an institution, is an indication of subjective understanding an authority – in this case *you are* an authority. Understanding the authority as a prestige, respect, personal quality or feature is a subject perception of this phenomenon – in this situation a person or an institution *give* an authority. Authority in subjective view refers to an individual or an institution, therefore this is a form of perceiving the authority as immanent part of personal identity of person or feature of particular subject. Two main types of authority can be singularised here: person-subjective (people constituting a role model) and institution-subjective (institutions respected because of performing social functions). The subject authority is outer construct against subjective authority. Several terms differ from each other in content and scope depending on subsuming authority in the context of phenomenon, feature or relation. Regardless of accepted definition personal authority should be understood as 'model', 'example', 'influence', that is an authority of a human who has great importance for others because of owned personal quality and possibility of influencing the run of events in particular field of political, social or cultural life. An authority is a peculiar social institution because from the oldest times it is permanent element of social order and it fulfills specified social functions. In primary societies the elderly people were respected as authority. The original authority of elders had became a trigger for establishing social institutions and law. The authority could be then base of state-building processes and also the element that joins and makes a culture. Nowadays, the authority is a cultural code that is common for every society regardless of social and economic system and historical tradition. In source literature the functions of authorities was analysed mostly in macroscale. The unitary dimension or the perspective of social groups were less important. Manager's authority in the context of team managed by him or organisation is a subject of analysis in the next chapter. From the beginning of management sciences' nascence an authority is considered as title to dictating and ability to ordering allegiance to yourself (Smit, Cronje, Brevis, Vrba, 2007, pp. 33–34). The classics have divided it into formal (official) and personal authority:

- Formal authority – institutionalised warrant to make decisions and call the shots in the name of organisation,
- Personal authority – ability to order obedience coming from intelligence, knowledge, experience, moral values, faculty of dictating etc.

M. Weber (1958, pp. 1–11) had featured three types of an authority:

- Traditional authority constitutes holiness of tradition. Ability and title to rule are handed-down, often by succession. It does not facilitates social change and it strenghtens status quo;
- Charismatic authority features leaders whose vision and mission inspire other people. Charismatic power is based on personal charisma of leader who is hold in esteem by his subordinates. People follow the leader because they feel he is going to help them in achieving the goals.
- Legal – national authority is empowered in faith in wording of the constituted and natural law. Obedience is not given to specific leader (neither traditional nor charismatic) but it constitutes a book of consistent rules. Bureaucracy is the example of this authority.

The researchers engaged in explaining the sources of an authority appeal to Ch. Barnard's theory of authority's acceptance (1971, p. 259). He claims that power has its source in subordinates' acceptance. The subordinates assess validity of superior's orders and they decide whether to carry them out or not. Managers have power when the subordinates carry out their orders. Cited author has emphasized that an employee will carry out an order if:

- he understands it;
- he thinks that order is consistent with organisational goals;
- he thinks that order is consistent with his own bag;
- he is mentally and physically efficient to carry it out.

Ch. Barnard (1971, p. 262) thought that it is possible to keep the balance of personal and organisational goals if managers know acceptance's area (indifference's area) of an employee. This means they know what employee will do without calling into question the manager's authority. The subordinates will accept the order if they profit from manager's acceptance or they lose because of lack of acceptance. The acceptance of order is facility of benefits coming from the order. Theory of acceptance supports behavioural approach to leadership but carries many problems in an organisation. It undermines manager's authority and his role in the organisation. Manager can not be sure if his orders will be accepted or not. He will know only when his orders will be carried out. People who perform managerial function can differently understand their role and be differently perceived by co-workers and environment especially in times of dynamic changes of organisation's environment (Mintzberg, 2009). The managers in the organisations command designated scope of power what involves possibility of influencing the employees to arrange activities that are desirable from the viewpoint of organisation. The power within the meaning of scientific management is an ability to independently make decisions (Junckerstorff, Gast, 1960, p. 76). Managerial power comes from place in organisational hierarchy and personal abilities to manage and endear subservient employees with the aim of realisation of own conceptions. S.M. Dornbusch i W.R. Scott (1975) had distinguished endorsed power and authorized power. When the subordinates accept superiors' orders and do their bidding, we have a brush with endorsed power. When junior manager's orders are supported and enforced by upper management and as a last resort by whole society, we have a brush with authorized power. McClelland and D.H. Burnham had affirmed that effective managers feel the bigger need to influence others for the good of organisation than for underlining of their importance (Stoner, Freeman, Gilbert, 1997, p. 240). The managers who cautiously use their power act more effectively than the ones who use their power to satisfy the need of domination on others or neglect its exercising. The buffering of rules and change of procedures with the aim of gaining credit of subordinates can arouse suspicion that a superior is weak and undecided. M.S. Murugan (2008, p. 17) emphasises that keeping balance between power and responsibility is important. The shortage of this balance will cause ineffective management.

An authority, just as power, is an important factor that influences effectiveness of leadership. It can be formal or informal. Hence possessing power is not tantamount to having authority. In practise of staffing it happens that these values cross. Competencies, proficiency, care of common good etc. do not decide about advancement but the irrational factors, like: shared events, emotional solidarity, tastes, identity of accepted norms will decide about it. Manager needs both formal authority and informal authority. Informal authority requires specified personal qualities and interpersonal skills. The effective management of an enterprise is influenced by demeanour of people with power. This demeanour not only comes from positions occupied by them but also from informal authority. Organisational authority is a formal authority when it is connected with position and its power is designated in an organisation's functioning's rules. Informal authority is based on competencies, personal qualities, way of behaving and values. Procedures of employees' promoting or recruitment to management positions usually need candidate's competencies in his or her field. Then formal authority is simultaneously an informal authority. But if it is not like this and person hired for management position is not capable, she or he has only formal authority. Giving him or her authority is an organisational justification of this authority. Formal authority comes from official importance of function performing in the organisation. Informal authority is a result of possessing the skills and character traits which render that the subordinates respect the superior's orders unaffectedly. Person who has this kind of abilities can integrate a team, create a positive atmosphere in workplace and encourage subordinates to bigger productivity and in consequence have influence on shaping employees' behaviour (Conger, 2005, pp. 40–41). On the grounds of review of source literature about management it is possible to indicate qualities of manager who is an authority for the subordinates (Drucker, 2006, pp. 370–372; Adair, 2011, p. 12; Wildenmann, 2015, p. 32; Amstrong, 2016, p. 16; Griffin, 2016, p. 526):

- competencies,
- fertileness,
- responsibility,
- requirements of yourself and others,
- endeavour to attain own purpose,
- ability to plan and organise work,
- professional development,
- openness to good relations,
- ability to motivate,
- ability to communicate with employees,
- readiness to compromise,
- ability to flip-flop,
- listening skills, empathy,
- respectfulness to others.

In scientific literature the controversies are apparent. They arouse from manager's authority's value for team that he managed or organisation. On the one hand it is indicated that respected manager (accorded formal and informal authority) is able to effectively motivate employees. It enhances management's effectiveness. There are simultaneously captious remarks that indicate that manager with strong authority limits independence and creativity of other team members. This issue is particularly important in organisations that work in project teams when every employee have high substantive competencies and creativity and initiative of particular persons decide about team's success. M.P. Follet (1927/1941) contributed to growth of studies over power and authority in organisation. In 1920s she wrote that employees should be treated as business partners and the professionals who work with each other.

This cooperation should elicit the best qualities from employees, be a contributor to team integration and reaching synergistic effect due to combination of knowledge and experience of individual employees. It is assumed that managers of the future will primarily have to possess skills of using the employees' competencies, going beyond the existing limitations, quick responding to changes in environment and learning the new (Hesselbein, Goldsmith, 2006, pp. 10-11). Evolution of modern organisations from bureaucracy to more flexible postbureaucracy leads to shift of manager's role in an organisation. J. Hendry affirms that changes in managerial education towards more humanistic direction should be incidental to the change of this education (Hendry, 2006, pp. 267–281; Ancona, Kochan, Scully, Maanen Van, Westney, 2009, pp. 35–41).

3. METHODOLOGY

The results of studies presented in this article are an element of a broader research project. This research was conducted in January of 2018 and concerned 60 representatives of upper and middle management who were also students in the Executive MBA program of the Institute of Economic Sciences at the Polish Academy of Sciences in Warsaw. On account of the relatively small sample size (especially in consideration to women – a total of 18) the study results can be used to identify certain trends or tendencies as well as to formulate hypotheses for further scientific research performed on a more representative group of participants. Study subjects included people having achieved various levels of education but all of their possessed managerial experience had been gained holding high level management positions (an average of 4 years). Although the site of the study was Warsaw the respondents represented all regions of Poland. The research is based on documented literature relating to the concept of self-awareness or the process of processing information about oneself and one's relationships with the environment. It is assumed that the participating managers possess external self-awareness relating to behaviors, social roles and interpersonal contacts. The research was aimed at answering the following research problems:

- How is concept of professional authority defined by Polish managers?
- What qualities and abilities influence the building of the manager's authority in their opinion?
- How do Polish managers perceive the relationship between manager's authority and effectiveness of management?

4. RESEARCH RESULTS' ANALYSIS

Open questions were applied to find out the opinions of managerial staff participating in the research about essence of professional authority. Table no. 1 shows classification of answers. The attribute approach that is prequalification of manager's authority because of qualities and abilities he or she owns dominates in understanding of this concept.

Table following on the next page

Table 1: Definitions of manager's authority in judgement of Polish managerial staff (self-elaboration based on survey research)

Answer category: Manager's authority is…	**Number (N=60)**	**%**
A complex of qualities that enable to build the team's involvement and effective management	19	31.7
Trust level of a team managed by this manager	15	25
A complex of qualities that bring the respect of the subordinates and other groups of co-workers	12	20
Kind of charisma with advocacy of competencies	8	13.3
Ethical attitude of manager	6	10
Manager's ability to realise delineated goals	6	10
Ability to combine his work with organisation's success	2	3.3
Knowledge, prospect and honesty	1	1.7
Ability to see human in your subordinate	1	1.7
Person who leads his or her team to success	1	1.7
Nonanswer	3	5

The answers do not aggegrate to 100% because part of the respondents gave complex answer.

Managers participating in the research have expressed the opinions that manager should be identified with his or her qualities and abilities that enable to build the team's involvement and thereby provide the effective management. Large group of respondents put together the authority with level of confidence in manager (25%) and the respect that he or she commands (20%). The authority is a kind of charisma combined with high level of professional competencies for over 13% of research participants. Relatively low rate of linking the authority with ethical attitude beats the drum. The dominance of attribute approach of authority justifies question about the profile of qualities and abilities that qualify manager's authority. Table no. 2 presents this data. In the opinion of managers participating in the research the most important ability that warrants building the authority is building and supporting the team's high involvement. The importance of interpersonal skills and emotional intelligence was also rated very high by the respondents. The responsibility and professional knowledge were also located in group of answers over 50%. The statistically significiant differences between women and men's answers were not affirmed.

Table following on the next page

Table 2: Profile of qualities and abilities which in Polish managers' opinion influence the most their professional authority (self-elaboration based on survey research)

Quality/ability	**Number (N=60)**	**%**
Professionally builds and supports team's high involvement	45	75
Has high interpersonal skills and high emotional intelligence	44	73.3
Is very responsible	34	56.7
Has a superior professional knowledge	33	55
Has a natural 'leader's gene'	22	36.7
Can climb down	21	35
Commands respect	18	30
Is demanding	15	25
Respect the co-workers' opinion	15	25
Is creative	11	18.3
Is intelligent	11	18.3
Sets great store on ethical aspects of management	7	11.7

The answers do not aggegrate to 100% because respondents could point maximally 5 qualities and abilities.

Nearly every third of the respondents combines authority with 'leader's gene', native charisma that is the qualities which are largely contingent on genes. It should be considered as interesting. Nevertheless managers asked about to what extent the authority entails permanent elements of personality and to what extent it has adaptive character related to knowledge and occupational professionalism have valuated similar value for these two factors (cf. table no. 3). The analysis of variance level indicates high inner consistency within the study sample.

Table 3: Conditioning of manager's authority [rating from 1 to 5 where 1 means 'I completely disagree' and 5 means 'I completely agree'] (self-elaboration based on survey research)

	Arithmetic mean	Variance
The authority is inextricably bound up with charisma and strong, expressive manager's personality	3.5	0.66667
The authority is inextricably bound up with high level of professional knowledge and competencies.	4.1	0.59583

The meaning of authority in the context of management's effectiveness was crucial issue taken up in the research. The study participants were asked to assess the truthfulness of ascertainments which concern the authority's influence on such variables as: manager team's independence, creativity and partnership, participation in management (cf. table no. 4).

Table following on the next page

Table 4. Manager's authority and management's effectiveness [rating from 1 to 5 where 1 means 'I completely disagree' and 5 means 'I completely agree'] (self-elaboration based on survey research)

	Arithmetic mean	Variance
Manager's strong authority is one of the most important factors that determine effective management of a team	3.9	0.87908
Strong authority paralyses subordinates' autonomy of thinking and creativity	2.1	0.64379
The employees miss strong leadership related to supervisor's personal authority	3.9	1.05
The employees more expect parthership and participation in management than strong leadership related to manager's authority	3.4	1.05

Managers who took part in the research rate high the importance of the authority as factor of success in management. In vast majority they think that authority does not pose a threat to the subordinates' independence and creativity. They also overlook the conflict between strong leadership grounded on manager's personal authority and management grounded on partnership and participation, although simultaneously the rate of variance indicates that opinions about it are more differential. The qualitative analysis of questionnaires indicates that around 10% of respondents point to clear advantage of 'longing for strong leadership' (rating 5) over expectation of partnership and participation in management (rating 1).

5. CONCLUSION

An organization needs effective and skilled executives to facilitate corporate success in the long run. Effectiveness of executives plays a vital role for the success of an organization in the contemporary business dome. Organizations need competent and SMART working managers to be able to achieve their objectives efficiently and effectively. The executives are employed for their skills and expertise to the maximize the profitability of the organization. They induce a vital role in developing and executing of organization operations and create an affective function for the implementation of strategies and policies (Yang, Zhang, Tsui, 2010, pp. 654–678). In this context, "managerial effectiveness" is an important factor that enables effectual operations and delivery of complex initiatives (Bamel, Rangnekar, Rastogi, 2011). Psychological interpretation of authority of a manager as a person with specified abilities and mental qualifications who commands respect and trust dominates among Polish senior management. They identify the authority more as source of managerial effectiveness than personal power. They strongly combine it with ability to build and support team's involvement. Two tendencies equilibrate in search of authority's genesis. On the one hand the respondents identify the authority with native qualifications typical for charismatic leaders. On the other hand they appreciate the function of professional knowledge and professionalism of management. The managers make out positive distinct relationship between manager's strong authority and management's effectiveness. They overlook the threats such as limit of subordinates' independence and creativity. Relatively small group involved in the research lies behind that conclusions worded above should be confirmed on representative sample. Diagnosing of the cultural differences in perception of the meaning and conditioning of the authority will be also cognitively interesting. The identification of influence such variables as sex and job seniority on management position on authority's evaluation requires further research.

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EFFECTIVE INVESTMENT THROUGH SOUND STRATEGIES AND POLICIES

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ABSTRACT

The Global Action for Africa's development (GLAFAD) has embarked on implementing a number of strategies that aim creating a multiplier effect on its investments. One of such strategy is that, GLAFAD has invested its employees' pension funds in Public Services Pension Funds (PSPF) Scheme. GLAFAD Cautious Managed Fund is an investment portfolio, which aims to provide a combination of income and growth in the investment value over the long term. The Fund seeks to invest conservatively in a broad range of 60% of shares and 40% invested in bonds issued by governments, institutions or companies around the world. PSPF's objective is to manage this Fund through the passive management dominated by indexing. GLAFAD is cautious on its bond investment and has purchased investment-grade bonds with Baa/BBB and a quality bonds, and has occasionally purchased bonds that are below investment grade. The Fund can be invested in more than 35% of its assets in securities issued or guaranteed by a EEA state. The Fund can also invest in other assets including cash and derivatives.

Keywords: GLAFAD, PSPF, Bonds, Investment, assets, securities

1. INTRODUCTION

The Global Action for Africa's development (GLAFAD) has embarked on implementing a number of strategies that aim creating a multiplier effect on its investments. One of such strategy is that, GLAFAD has invested its employees' pension funds in Public Services Pension Funds (PSPF) Scheme. GLAFAD Cautious Managed Fund is an investment portfolio, which aims to provide a combination of income and growth in the investment value over the long term. The Fund seeks to invest conservatively in a broad range of 60% of shares and 40% invested in bonds issued by governments, institutions or companies around the world. PSPF's objective is to manage this Fund through the passive management dominated by indexing. GLAFAD is cautious on its bond investment and has purchased investment-grade bonds with Baa/BBB and a quality bonds, and has occasionally purchased bonds that are below investment grade. The Fund can be invested in more than 35% of its assets in securities issued or guaranteed by a EEA state. The Fund can also invest in other assets including cash and derivatives.

2. FEE STRUCTURE OF THE FUND

In Government Finance Officers Association (GFOA), it was indicated that fees could be minimized by:

1. Applying low-cost passive index investment strategies;
2. Applying low operating cost; and
3. Exploring opportunities for achieving economies of scale.

GLAFAD Funds are invested on traditional investments, which are based on assets that pool assets of multiple investors. There could be a challenge when it comes to control over fees levied by the portfolio manager. In order to ensure that we are paying the reasonable and

competitive fees and that both parties are in mutual agreement with the applicable fees charged over our investment portfolio, PSPF will implement the following strategies:

1. GLAFAD will examine the fees, the investment process and historical performance of passive management in order to replicate the average market return and we will ensure that this is included in our investment policy statement.
2. Any fees not related to the management of the portfolio should be excluded.
3. Any unused fees related to the lowest-cost share class should be refunded to the retirement system.
4. PSPF should consider all the accounts relating to the pension fund when determining fees.

The Fund investment is derived from historical averages for different asset classes; the UK Equities hold a substantial percentage (30.2%) of the asset allocation. The asset mix can be demonstrated in the following graph:

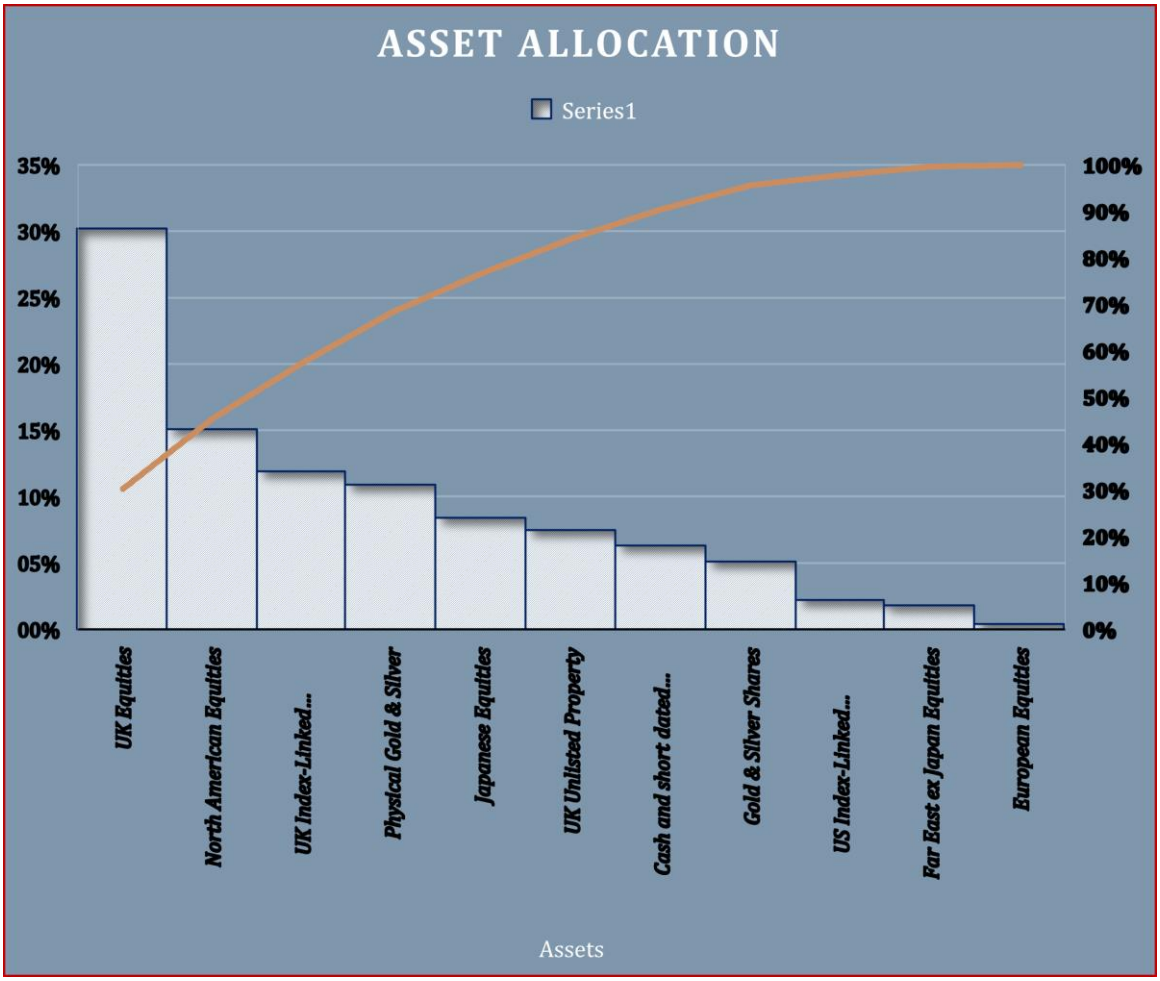

Figure 1: Asset allocation

PSPF has an option to use a single security or indexed investment. In order to balance the risk and rewards, PSPF would prefer to use the indexed investment for the strategic asset allocation. This is on the basis that the indexed investment is a highly diversified portfolio with negligible nonsystematic risk. Based on the information provided the Fund is designated as class A of shareholding, which indicates the level of voting rights that the shareholders receive. GLAFAD has adapted class A in order to maintain control and to make the university a more difficult target for a takeover.

3. COMPARISON TO THE PEER GROUP

Based on the information provided our historic yield is 0.43% which is lower than the one of the two-peer group: A Inc Net GBP has the historic yield of 0.44% and A Inc-2 Net GBP has the historic yield of 1.74%. The lower yield could enhance the stock return. Our Fund is currently underperforming in comparison with the sector in respect of the years: 2016, 2015, 2014 and 2013, there was a slight improvement in 2012 with a drastic fall in 2011. In the current year of 2016 (YTD) the fund shows the performance of 2.1% which could be an indication that the Fund has the pension surplus. PSPF can finance future liability accruals by drawing on a surplus. The surplus will increase with plan contributions and investments earnings. However, the public pension funds are currently underperforming and the current surplus will not be sufficient in covering the accumulated liability.

4. HOW MUCH OF THE UNDERPERFORMANCE IS ARRIBUTED TO THE INVESTMENT PHILOSOPHY?

Passive investment philosophy has its roots in the history of equity indexing. In Paul Samuelson (1974) and Charles D. Ellis (1975), it was indicated that the increased institutional share of the market left too little stock in the hands of nonprofessional investors for amateurs to fill the ranks of underperformers by themselves. Steven Malanga (2016) has reported a poor performance in public pension fund during the year of 2015, pension systems earned an annual average of 3.2%, which was below the projected annual average of 7.6%. The Fund indicates the Short S&P 500 futures with a negative of -23.3%, which is an indication of a bull market due to the accumulating pension debt. Pension funds average their assets for more than a year, we have the ten years annualized, five years annualized, and three years annualized. This means that when the unfunded liability occurs in the first year, the same problem will keep on occurring for several years.

5. WHAT IS THE SHARPE RATIO AND VOLATILITY RATIO OF THE FUND DEPICTING?

The Fund will be measured by making use of the Sharpe ratio in order to represent the entire risky investment. The Sharpe ratio will be appropriate in calculating the risk adjusted return as it measures the reward to volatility trade-off. Sharpe's measure divides average portfolio excess return over the sample period by the standard deviation of returns over that period. Sharpe ratio = (Mean portfolio return – Risk free rate)/Standard deviation of portfolio return which could be represented by the following mathematical formulae:

$$\mathbf{Rp - Rf/Бp}$$

The annualized Sharpe ratio is provided at 0.02% and the annualized volatility is 9.7%. We can therefore determine the risk-free rate:

$0.02 = 1.7 - Rf/9.7$

$Rf = 1.51\%$

PSPF have to determine the quantitative approach to asset allocation by measuring the numerical risk aversion (RA) for asset mix. Our risk tolerance is high we will therefore use the RA of 1.5 in order to determine the expected utility for asset mix by applying the following formulae:

$$\mathbf{Um = E(Rm) - 0.005RAБ^2m}$$

$$E(Rm) - 0.005(1.5)\,Б^2m$$

$$E(Rm) - 0.0075Б^2m$$

6. PERFORMANCE IN A POST BREXIT ENVIRONMENT

In Black (2017), it was indicated that a failure to rebalance a portfolio would lead to vulnerability in the market. Rebalancing could happen into two different perspectives; firstly, it could refer to the changes in the portfolio policy due to changes in the investor's investment objectives and constraints or because of changes in his or her long-term capital expectations. Secondly, it could refer to adjusting the actual portfolio to the strategic asset allocation because asset price changes have moved portfolio weights away from the target weights beyond tolerance limits. The current unit trust asset allocation is at 20% bonds and 60% of assets in shares. This allocation could change over time, e.g. after one year these weightings could shift to 15% in bonds and 65% in shares. Continuous investment using the same weightings over the period of five years without rebalancing might result in 5% in bonds and 75% in shares. Therefore adjusting the actual portfolio to the current strategic asset allocation due to price changes in portfolio holdings will be required. Black (2017) can be quoted on his article when he indicated that, "Rebalancing a portfolio is a simple matter of buying and selling units in the funds to bring them back to their original weightings". We have noted that the Fund has the unlisted property exposure across UK. Kulcsar (2011) indicated that the unlisted property funds have a lock-in period and notice periods for withdrawals, hence they become less desirable for pension funds with active allocation strategies or large periodic cash flow requirements. When the inflation rate is high, there will be a significant impact on the fund withdrawals because it will not be easy to withdraw any funds from unlisted property during such period. Kulcsar (2011) further indicates that 'unlimited property is liquid which makes unlisted property investments difficult to administer and allocate to individual members in a defined contribution fund'. The unlisted property in a pension fund portfolio should provide returns that are proportionate with the underlying economic fundamentals of the property market. In order to reach a target return, it is important that the current pension fund portfolio is rebalanced on a quarterly basis. Rebalancing will also, help the Fund in managing the risk to a certain extent, rebalancing maintains the desired systematic risk exposure. Therefore, a commitment to rebalance to the strategic asset allocation offers an effective way to dissuade from abandoning the investment policy statement at fateful moments. A failure not to rebalance may result in holding assets that have become overpriced and offering inferior future rewards.

7. CONCLUSION

We will consider an aggressive approach by investing more on shares and on bonds over the period of five years. We will then reduce the percentage allocated to physical gold and silver and UK unlisted shares as well as on cash. The majority of assets will then be allocated to the US Equities. This is on the basis that the US inflation is at a lower rate; therefore, we can expect possible improved investment return. Based on the stock valuation, we are currently on a sell position and we hope that our aggressive approach will result in higher returns in order to continue investing in the Fund.

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BANK-SPECIFIC DETERMINANTS OF COOPERATIVE BANKS' PROFITABILITY IN POLAND

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ABSTRACT

Apart from the external, usually macroeconomic causes affecting the financial results of banks, the important factors that play a role are those affected by the decision-makers of specific entities. The paper discusses the bank-specific factors affecting profitability of cooperative banks. Credit cooperatives are also social institutions, therefore they operate in the social dimension, too. However, the implementation of important social tasks can lead to decreasing financial results. Therefore, research was conducted taking into account selected social aspects of the activities of the cooperatives concerned. The paper aims to examine the factors determining the profitability of cooperative banks in Poland as exemplified by a selected group of 75 such entities. The study used quarterly panel data from the years 2009-2016. The assessment of profitability in the surveyed group of banks was made using the economic regression models (fixed effect models). ROA and ROE were assumed as endogenous variables. In the examined group of banks, the factors that negatively influence the obtained results are: low quality of the loan portfolio, lack of balancing of acquired deposits with granted loans (in a situation where the cooperative bank becomes a net-lender to other financial market participants), SME or farmer loans, as well as increasing the share of deposits in the financing of operations. Profitability is increased when the sum of capitals or net commission income grows. The hypotheses regarding the impact of the scale of activity on the profitability of the surveyed entities have not been confirmed.

Keywords: *Cooperative bank, Determinants, Profitability*

1. INTRODUCTION

Cooperative banks play a significant role in the functioning of banking systems in Europe. The sector of Polish cooperative banks (553 entities as of October 31 2017) is the most numerous segment of the banking sector, however its share is as low as about 10% (10% in the market of deposits of the non-financial sector; 7.2% in the market of loans for the non-financial sector, according to data for 2016) (Information, 2017, p. 7). What influences the activities of cooperative banks is the banking nature of the offered services (Fonteyne, 2007, p. 6; Gniewek, 2016, pp. 43-45; Siudek, 2011, pp. 50-54), and the cooperative way of managing, which is related to following particular rules, regulations and practices, but also, most importantly, social functions. As credit institutions, they should generate financial surpluses from the conducted activities, and when there are no surpluses, they are subject to sanctions imposed by supervising institutions. From the point of view of performing tasks in the social dimension, they should rather aim at fulfilling the goals of shareholders and local communities (Giagnocavo, Gerez, 2012, p. 284; Golec, 2010, p. 72; Hudon, Perilleux, 2014, p. 147). The social dimension of the activities of cooperative banks may concern: the way of defining the aims of activities, the distribution of the produced balance surpluses, available and favourable credit conditions for particular, frequently "economically difficult" clients, offering services in the areas which are less attractive in terms of economics, concentrating crediting activities in specific areas (in accordance with the cooperative principle "local money for local needs", balancing the stream of deposits with the volume of loans) (Szambelańczyk, 2006, pp. 111-113), activating and training the members of cooperatives (Nastarowicz, 2016, pp. 26-29). Social goals may compete with economic goals.

This paper addresses the influence of particular activities and behaviour models of cooperative banks on the financial outcomes of their activities. Social activities undertaken by banks were evaluated, including granting loans to small and medium enterprises and to farmers, as well as balancing the streams of deposits and loans. Moreover, other profitability conditions, those depending on the decisions made by banks, were taken into account, for example, the scale of activities, the quality of loan portfolio, the level of capital adequacy, the structure of assets, and the structure of financing of activities. The aim of the study became identifying the factors determining the profitability of cooperative banks in Poland on the example of 75 banks. The survey used quarterly panel data from the years 2009-2016. The assessment of profitability in the surveyed group of banks was made using the econometric regression models for panel data.

2. BANK-SPECIFIC DETERMINANTS OF BANK PROFITABILITY IN THE SUBJECT LITERATURE

Despite the dual character of the activities undertaken by cooperative banks, the most frequently applied criterion to evaluate the outcomes of their activities is the size of the produced balance surplus. It should be also mentioned that the subject literature describes various methods of evaluating the effectiveness of the activities of cooperative banks, most frequently from the point of view of banking systems of countries or regions (e.g. Bolt, Haan, Hoeberichts, Oordt, & Swank, 2012, p. 2552; Petria, Capraru, & Ihnatov, 2015, p. 519; Fiordelisi, 2009, pp. 80-127; Siudek, 2011, pp. 185-191), however, such studies can be used to evaluate particular institutions only to a limited extent (in terms of microeconomics). Therefore, this study focuses on the measures of profitability. The determinants of profitability include (Almazari, 2014, pp. 126-129; Athanasoglou, Brissimis, & Delis, 2008, pp. 122-124; García-Herrero et al., 2009, pp. 2081-2082; Petria et al., 2015, p. 520):

1. bank-specific (internal) factors – factors which depend on the decisions made by individual institutions,
2. industry-specific factors – factors resulting from the structure of the market, influencing all the institutions in the sector, e.g. market concentration
3. macroeconomic (external) factors – factors independent of the decisions made by individual economic entities, but related to the functioning in a particular country or region, e.g. inflation rates, unemployment rates, economic growth.

The outcomes of the activities of banks are influenced by all of the factors mentioned above, however, from the point of view of practical use of the results of the research, it is worth to look more closely at the internal causal factors of profitability. Their number, scope, or the moment in time of the actual influence on the outcomes of activities are relatively complex, however, in quantitative research on determinants of profitability of financial institutions, the most frequently considered determinants include the relatively fixed set of internal measurable factors, such as the quality of loan portfolio, the size of a bank, capital adequacy, financing structure, liquidity risk, the structure of assets, efficiency (García-Herrero, Gavilá, & Santabárbara, 2009, p. 2081-2082). In most of research, what influences the profitability of banks in a direct way is the quality of their loan portfolio. The growing significance of non-performing loans in loan portfolios is a factor reducing financial results of banks (Trujillo-Ponce, 2013, p. 565; Athanasoglou et al., 2008, p. 123). In terms of the influence of a bank's size on its results, the available research has not provided any definitive answers. On the one hand, the increase in the size of a bank results in the effect of scale (Athanasoglou et al., 2008, p. 123; Pasiouras and Kosmidou, 2007, p. 225; Moutsianas & Kosmidou, 2016, p. 141), however, it also leads to the growth of bureaucracy and inflexibility, which does not contribute to improving the results. With a relatively narrower scope of the activities of cooperative banks, it can be assumed that the increase in the scale of activity is beneficial.

Another internal factor which is taken into consideration in research and which determines profitability is a bank's equity, treated as a guarantee that a business entity will continue its activities. A higher level of bank's equity is the basic measure of the safety of its activities, so it may increase the level of trust. The literature largely emphasizes the positive influence of the capital adequacy ratio on profitability (Sufian & Habibullah, 2017, p. 207; Pasiouras & Kosmidou, 2007, p. 225), although also a different view on this factor exists, namely that the increase in the share of the capital leads to the decrease in the leverage effect and therefore the increase in profitability. Banks can finance their activities by traditionally obtaining deposits from their clients or by using the capital obtained in the wholesale money market. It is assumed that money obtained from clients is relatively cheaper, therefore increasing the share of deposits in the total of liabilities should positively impact the achieved profitability (Fonteyne, 2007, pp. 12-13; García-Herrero et al., 2009, p. 2082). A higher liquidity of a bank may positively impact its profitability, since an institution which possesses an adequate level of liquid assets or an adequate financing structure is able to fully settle its liabilities and finance new loans (Alexiou & Sofoklis, 2009, p. 100). On the other hand, higher liquidity may also lead to decreased profitability. The structure of assets, understood as a share of loans in balance sheet total, is a group of determinants of banks' profitability which frequently occurs in research. If a bank allocates capital acquired as deposits into loans which bear a relatively high risk, and not in securities, it can increase its profitability (Trujillo-Ponce, 2013, p. 565). This category of determinants may include the above-mentioned granting loans to more risky participants of the market (SMEs, farmers), who can acquire access to financing only in cooperative banks as social institutions. The increase in the scale of granting loans to these groups of customers may lead to decreased profitability. In terms of the structure of assets and liabilities, the functioning of cooperative banks in particular environments gives additional meaning to the financial agency of banks in local communities, because it enables cash flow within a given region. However, if a cooperative bank does not balance the cash flow, this leads to a bank producing a surplus (positive net balance), and exporting the accumulated monies (bank as net lender). Therefore, the wider the gap between deposits and loans, the lower profitability.

3. PROFITABILITY OF A GROUP OF COOPERATIVE BANKS IN POLAND AND ITS DETERMINANTS

Established on the basis of the subject literature and complemented with social aspects, internal determinants of profitability were evaluated with the use of quantitative methods on the basis of financial data from 75 cooperative banks in Poland. Quarterly data from December 2009 to March 2016 were used including 1950 observations. The data were made available by one of three audit associations of cooperative banks in Poland - Związek Rewizyjny Banków Spółdzielczych in Poznań. The first step consisted in describing and differentiating the surveyed group of banks by means of the measures of descriptive statistics, using the following categories: the total of assets, workforce size, the total of deposits, capital, capital adequacy ratio, net financial result, ROA (as total assets net result) and ROE (measured as total net result for equity). The basic descriptive characteristics of the surveyed banks sample, both the measure of central tendency and differentiation are included in Table 1.

Table following on the next page

Table 1: Variables characterising the surveyed group of cooperative banks

Variable	Assets [PLN k]	Work-force size	Capital [PLN k]	Capital adequacy ratio [%]	Financial result [PLN k]	ROA (%)	ROE (%)
Mean	181 674	70.2	18 194.5	15.4	1 114.4	0.66	5.87
Median	134 756	54.0	13 507.6	14.2	706.3	0.56	5.18
Standard deviation	162 323	49.8	13 461.0	4.7	1 241.2	0.46	0.04
Coefficient of variation	0.9	0.7	0.7	0.3	1.1	0.69	0.60

Taking into account the arithmetic mean and median, the surveyed sample consists of average-sized Polish cooperative institutions, for example with assets up to PLN 200M, with several dozen employees. It is worth noticing that the surveyed banks are considerably differentiated: the coefficients of variation for balance and result values range from 70% to as many as 110%. The surveyed group of banks is characterised by right-side asymmetry of distribution, and there are more entities working on a smaller scale (medians always assume values lower than average).

Table 2: Characteristics of independent variables and the adopted hypotheses

No	Variable	Definition	Hypothesis about the influence on profitability
1.	Equity	Bank's own funds based on the balance sheet (PLN k)	positive
2.	Workforce	Number of employees	positive
3.	Assets	Total assets (PLN k)	positive
4.	Gap	Deposits from the non-financial sector minus loans for the non-financial sector (PLN k)	negative
5.	Significance of deposits	Share of deposits from the non-financial sector in the balance sheet total (%)	positive
6.	Significance of credits	Share of credits in the balance sheet total (%)	positive
7.	Loans_farmers	Value of loans granted to farmers (PLN k)	negative
8.	Loans_SME	Value of loans granted to small and medium enterprises (PLN k)	negative
9.	Quality of loan portfolio	Share of non-performing loans in the loan portfolio (%)	negative
10.	Capital adequacy ratio	Bank's core capital to its risk-weighted assets and other risks (%)	positive
11.	Result	Net profit (PLN k)	positive

Another step included the evaluation of the determinants of profitability in the surveyed group of banks, using panel mathematical models. As endogenous variables, ROA and ROE were assumed, and as the independent variables served the categories indicated in Table 2. The selection of potential independent variables, as well as specifying the direction of influence on profitability resulted from the previously conducted literature review. Additionally, in order to evaluate the scale of activities, the size of workforce and equity were included, accepting also the hypothesis that the increase in workforce (or equity) leads to the increase in profitability. Moreover, in accordance with the considerations about the social activity of banks, a hypothesis was adopted that the increase in granting loans to farmers (or SMEs) reduces the profitability of banks. Polish farmers traditionally use the services of cooperative banks, and their activities

are supported by the state by means of various soft loans. These loans are granted on terms which are fixed ahead, and the aid from the state largely fails to compensate the banks for the lower profit they make on such loans. In order to verify the research hypotheses, the econometric regression model was applied. In the initial stage, for all the estimated models, a model was prepared using the method of least squares, which was evaluated with the use of diagnostic tests. After applying the Breusch-Pagan test, it turned out that the most accurate panel models are those using the generalised least squares method. Hausman's test, on the other hand, allowed establishing that for the data considered, the most accurate models are the fixed effects models (Dańska-Borsiak, 2011, p. 44).

$$y_{it} = \alpha_i + \lambda_t + \beta' x_{it} + \varepsilon_{it}$$

Where:

y_{it} - cross-sectional/time-series dependent variable,

α_i – individual result, fixed in each time period, but different (may be different) for each object in the panel;

$\beta' x_{it}$ - matrix of observations on the independent variables;

λ_t – fixed periodical result with the same value for all the units in the panel in the same period, but it is different (it can be different) in each time period;

ε_{it} - random confounding factor.

For the independent variables indicated above, data tables were prepared, and model estimation was made using Gretl program. For each of the dependent variables, two models were presented, because no correct models were obtained previously including the variables related to the scales of activity. The variables »assets« and »equity« turned out to be insignificant in the tested models. In model 2 and 4, the variable »workforce size« was included, significant from the point of view of the obtained models. In all of the obtained models there are significant relationships between the tested variables. Two models were obtained for ROA and two for ROE. In the first model, the significant stimulant-type independent variables are solvency ratio and financial result. Other variables adversely affected the profitability of the tested group of entities (Table 3). According to the model, the decrease in the quality of a loan portfolio (measured with the share of non-performing loans) by 1 percentage point leads to the decrease in ROA by 1.5 basis points.

Table 3: ROA_1 panel model for the surveyed cooperative banks

Variable	Coefficient	Standard error	t-student	p-value
Const	1.01382	0.117984	8.593	<0.0001
Gap	-1.19167e-09	1.82597e-010	-6.526	<0.0001
Significance of deposits	-0.0081812	0.00126522	-6.466	<0.0001
Loans_farmers	-1.38042e-09	2.23223e-010	-6.184	<0.0001
Loans_SME	-2.29107e-09	1.93405e-010	-11.85	<0.0001
Quality of loan portfolio	-0.0151071	0.00236229	-6.395	<0.0001
Capital adequacy ratio	0.000200059	0.00145876	13.71	<0.0001
Result	2.07972e-07	7.94784e-019	26.17	<0.0001
R^2		0.733		
F(81, 1865)		63.342		

In the second model explaining the same profitability ratio, workforce size was taken into account. However, it turned out that the regression coefficient had a negative value, and the increase in workforce leads to the decrease in a bank's profitability with other factors remaining unchanged.

Table 4: ROA_2 panel model for the surveyed cooperative banks

Variable	Coefficient	Standard error	t-student	p-value
Const	0.368148	0.0272378	13.52	<0.0001
Workforce size	-0.002692	0.0002147	-12.53	<0.0001
Gap	-5.15994e-010	1.88853e-010	-2.732	0.0063
Portfolio_quality	-0.00984671	0.00227176	-4.334	<0.0001
Loans_SME	-7.11607e-010	2.23181e-010	-3.188	0.0015
Capital adequacy ratio	0.0204214	0.00134589	15.17	<0.0001
Result	2.11012e-07	6.59091e-09	32.02	<0.0001
R^2		0.744		
F(80, 1866)		67.769		

In the model panels for ROE, a higher coefficient of determination was obtained, on the level of about 80% (Table 5 and Table 6). Most of the considered independent variables are destimulants. In the surveyed group of banks, ROE was influenced the most significantly by the quality of loan portfolio. Together with the increase in the share of non-performing loans by 1 pp, and with other variables unchanged, ROE decreases by 13.2 basis points (11.1 – in the second model). In the panel models of ROE, a negative influence of the capital adequacy ratio on the equity profitability was obtained, a result which is different from the two other models.

Table 5: ROE_1 panel model for the surveyed cooperative banks

Variable	Coefficient	Standard error	t-student	p-value
Const	6.65702	0.174427	38.17	<0.0001
Gap	-4.26266e-09	1.10313e-09	-3.864	0.0001
Loans_farmers	-1.73652e-08	1.45865e-09	-11.91	<0.0001
Loans_SME	-1.478e-08	1.26157e-09	-11.72	<0.0001
Portfolio_quality	-0.131621	0.0154055	-8.544	<0.0001
Capital adequacy ratio	-0.0834312	0.0088248	-9.4541	<0.0001
Result	1.91286e-06	5.18837e-08	36.8683	<0.0001
R^2		0.805		
F(80, 1866)		96.427		

Similarly to the model for ROA, this factor turned out to be a destimulant also in the model for ROE, which took into account the size of workforce.

Table 6: ROE_2 panel model for the surveyed cooperative banks

Variable	Coefficient	Standard error	t-student	p-value
Const	7.15684	0.00181428	39.45	<0.0001
Gap	-0.0123501	0.0133987	-9.217	<0.0001
Loans_farmers	-1.18157e-08	1.55776e-09	-7.585	<0.0001
Loans_SME	-7.92903e-09	1.44778e-09	-5.477	<0.0001
Portfolio_quality	-0.111192	0.015232	-7.300	<0.0001
Capital adequacy ratio	-0.0994741	0.008876	-11.21	<0.0001
Result	1.93132e-06	5.06456e-08	38.13	<0.0001
R^2		0.812		
F(80, 1866)		100.885		

On the basis of the calculations concerning the four panel models, it must be stated that in all of them the increase in the scale of granting loans to SMEs leads to the decrease in profitability.

Table 7: Summary of the research on the determinants of profitability of cooperative banks

No.	Variable	Model				Influence evaluation
		ROA_1	ROA_2	ROE_1	ROE_2	
1.	Equity					not established
2.	Workforce size		-		-	negative
3.	Assets					not established
4.	Gap	-	-	-		negative
5.	Significance of deposits	-				negative
6.	Significance of loans					not established
7.	Loans_farmers	-		-	-	negative
8.	Loans_SME	-	-	-	-	negative
9.	Loan portfolio quality	-	-	-	-	negative
10.	Capital adequacy ratio	+	+	-	-	not established
11	Result	+	+	+	+	positive

In three models a negative correlation was found between granting loans to farmers and profitability. In all the models it was confirmed that there is a relationship between profitability and the quality of portfolio. What was also noticed was a significantly positive influence of financial result on profitability ratio. The three models also confirm the dependence of profitability on funding gaps: the higher the imbalance in the form of unused deposits, the lower profitability. In one model a negative dependence of profitability on the meaning of deposit in the banks activities was established. For other explanatory variables no correlation was found, because the variables in the determined models were insignificant.

4. CONCLUSION

Cooperative banks are institutions which with their cooperative form of conducting business activities go beyond the realm typical of commercial institutions. This means that it is necessary to consider the issues concerning their profitability more broadly, also in the context of the social character of their activities. The conducted research has shown that the key internal factors affecting the profitability of cooperative banks are the quality of the loan portfolio, financing gap, and the scale of lending to SMEs and farmers. Taking into account the influence of the quality of loan portfolio, the relationship established in other research was confirmed. Unfortunately, it was not possible to clearly demonstrate the positive influence of the increase in the capital adequacy ratio on the profitability of the surveyed institutions. A negative relationship between the deposit-loan ratio and profitability can be explained by the fact that in the examined group of banks, surpluses occur the most frequently. Therefore, the unused deposits widen the gap, and surplus cash deposited in associated banks allow cooperative banks to obtain revenues which are significantly lower than revenues obtained from the loan portfolio. The study, based on data from a selected group of cooperative banks, for a fixed time period and for a particular bank sector, has a diagnostic character. It is worth emphasizing that the activities of the surveyed banks in the social dimension turned out to compete with their economic goals.

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THE ROLE OF IMMIGRANT WORKERS IN PRODUCTIVITY AND ITS MAIN COMPONENTS IN OECD COUNTRIES

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ABSTRACT

Immigration and productivity are really important aspects that affect the economy of countries. Therefore, in recent years the number of scientific papers addressing migration and productivity has increased. However, migration flows have a marked dynamic character with important consequences for the economy, and therefore it is convenient to analyze them in the long term. This article analyzes migration, labour productivity and capital productivity by comparing Spain with relevant economies of the OECD in the long term. With this purpose, the most important migratory theories, such as the classical theory, the Harris and Todaro theory, among others, have been taken into account, together with the new estimates and indicators of productivity elaborated by the OECD, such as the Gross Domestic Product by hours worked, hours worked per capita, the use of the labor factor, the productivity of capital services and multifactor productivity. Among the main results, a positive association has been observed between the use of the labour factor, capital services in non-intensive ICT companies and immigrant workers, especially in the case of Spain. However, we can conclude that the impact of this type of workers on productivity is limited. In addition, the more qualified workers increasingly migrate to countries with more attractive conditions, in the long term this is detrimental to the productivity of the countries of origin, and therefore, of their growth. Concerning the relation of labour productivity and immigrant workers, it has been observed that its impact is relevant in the case of the productivity component called the use of the labour factor, with a positive relationship in all educational levels analyzed.

Keywords: *capital productivity, immigrant workers, labour productivity, multifactor productivity use of the labour factor*

1. INTRODUCTION

Productivity is considered a key source of economic growth and competitiveness and, as such, internationally comparable productivity indicators are essential for assessing economic growth (OECD, 2016, Craine, 1973). In this sense, productivity growth is recognized as the main determinant of long-term economic growth (Harris and Moffat, 2016, Mourre, 2009, Krugman, 1997, Baumol, 1984). Any decline (in the long term) will have adverse consequences, for example, the loss of competitiveness will lead to the loss of markets, especially exports, and will also affect technological progress. Therefore, this paper analyzes the evolution of productivity and its main components in OECD countries, and also takes into account the role of immigrant workers in the productivity of labor and capital.

To do this, we will study migration, labor productivity and capital productivity, focusing on the productivity of the most relevant economies in the long term, and taking into account the new estimates and productivity components developed by the OECD.

2. THE PRODUCTIVITY OF LABOR AND MIGRATION

The OECD Productivity Statistics constitute a coherent and modern set of measures of productivity in the economy. The OECD presents productivity indicators based on GDP, relating the added value with the inputs of labor and capital used, and thus, productivity measures can be calculated for different representations of the production process. Labor productivity is measured mainly based on labor productivity, which is calculated by the GDP per hour worked, and also a second main component would be the use of labor, calculated by hours worked per capita (OECD, 2016). In relation to this, in the first place, to say that, in general, the growth of labor productivity continues to be lower than the pre-crisis rates in many countries. The evidence points to the fact that the growth of this type of productivity began to decline before the crisis, with rates that fell since the 2000s in countries such as Canada, the United Kingdom and the United States, and even before, since the 1970s., in countries such as France, Germany, Italy and Japan (OECD, 2016). Figure 1 allows to compare labor productivity in 2004 and 2014.

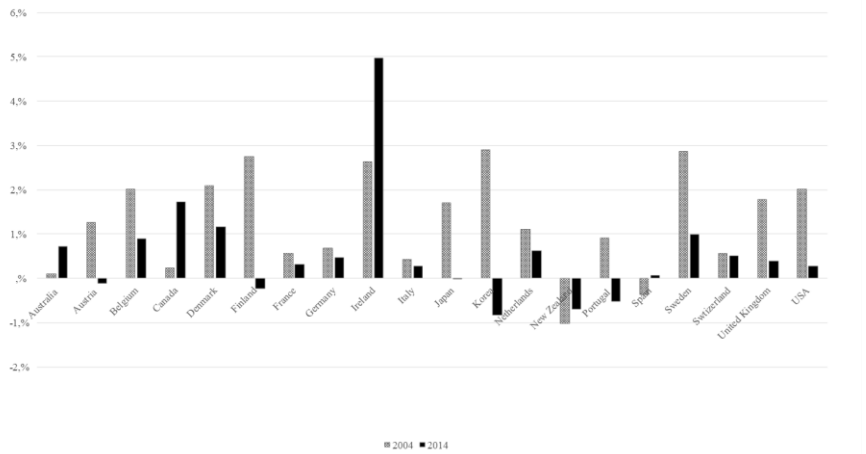


Figure 1: Growth in labor productivity in OECD countries, 2004 and 2014 (%) (OECD, 2016)

In the case of labor productivity in Spain, it is observed that it is the only country of those analyzed that passes from negative values in 2004 to obtain positive values in 2014. Also, if we compare other countries that have experienced productivity growth, we would highlight the case of Ireland, followed by Canada and Australia. It is also striking that the United States is the country that has most reduced its productivity in those 10 years. The differences between countries in the growth of GDP per capita for this period can be attributed mainly to the differences in the growth of labor productivity (OECD, 2016). This situation has been accentuated since the last great economic recession, especially in countries where its effects have been most severe and where employment levels have not yet recovered, or expressed in terms of productivity, where hours worked per capita have decreased. To measure the impact that immigrants have had on productivity, the variation of the main measures of productivity (labor, capital and multifactor) developed by OECD (2016) has been analyzed. Labor productivity has been defined in the previous section of this work. In the case of capital productivity, they are defined in following section. Also, in the case of capital information has been included based on whether the companies are ICT intensive or not.

For this analysis of productivity, the educational level of immigrant[1] workers has also been taken into account, since productivity not only refers to the hours worked, but also takes into account the skills and abilities of workers (OECD, 2016). Table 1 shows the statistical description of the sample used. In the case of labor productivity, updated data (2015) is available for 30[2] countries, and in the case of capital productivity and multifactor, 17 countries.[3]

Table 1. Descriptions of the variables used. UE28, 2015

Variable	Obs	Mean	Std.Dev.	Min	Max
Total Foreing	30	-0,60	4,0634	-17,20	5,26
Total Natives	30	1,03	1,2277	-2,54	3,02
Foreing L	30	0,64	6,6180	-18,04	22,04
Native L	30	0,49	2,7334	-4,32	6,21
Foreing M	30	-0,50	5,2877	-16,67	16,54
Native M	30	0,85	1,3104	-1,77	3,84
Foreing H	30	0,26	3,0410	-11,27	9,09
Native H	30	0,55	0,6382	-0,56	1,75
GDP per hour worked	30	1,58	4,0409	-1,27	21,80
Labor use	30	0,99	1,2122	-1,79	3,19
Capital deepening	17	0,70	1,0496	-1,11	3,05
Capital deepening, ict	17	3,80	1,9167	0,38	6,64
Capital deepening, non ict	17	0,23	1,1757	-1,52	2,71
Capital services	17	1,80	1,2514	-0,23	5,39
Capital services, ict	17	4,90	2,0373	0,73	8,97
Capital Services, non ict	17	1,34	1,2578	-0,86	5,04
Multifactor productivity	17	0,67	1,2659	-0,70	4,97

The correlation analysis of the growth of labor productivity of immigrants in 2015 revealed significant associations only in the case of immigrant workers and labor use, although for all educational levels. Next, we show these results in figures 2, 3 and 4.

Figure following on the next page

[1] Immigrant workers by educational level: low (L); medium (M) and high (H).

[2] Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States

[3] Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States

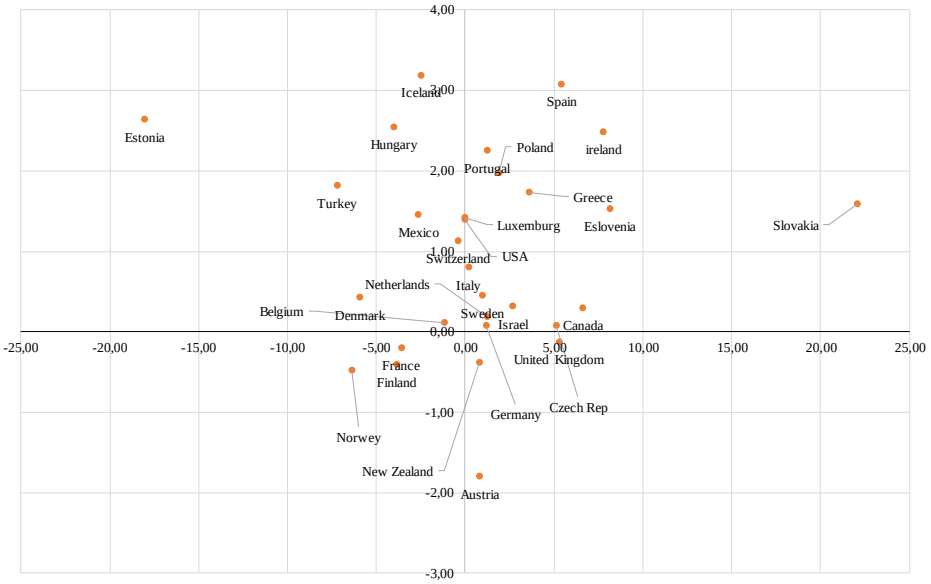


Figure 2: Use of the low-skilled immigrant labor factor in OECD countries, 2015. (OECD, 2016)

Figure 2 shows once again that Spain is one of the countries with the highest growth in the use of the low-skilled labor factor[4]. This reflects the great increase in unemployment in the last decade in Spain, which has been especially important in the case of immigrant workers. Basically, with the recession, the same tasks are shared among a smaller number of workers, which in the end means an increase in productivity. By comparison, in the United States, another of the countries that according to the OECD (2016) receives a large number of immigrants, immigrant workers with a low educational level also predominate, but the hours worked by immigrants are lower than in the case of immigrants. Spain, probably due to the predominance of even more partial and precarious hiring (Jaime-Castillo, 2008). On the contrary, in countries with a higher GDP than Spain, such as Austria, Norway and Finland, it is observed that labor productivity is not based on the use of the immigrant labor factor, in fact, it has decreased in these countries.

Figure following on the next page

[4] The use of the work factor is basically a ratio between the hours of work actually employed and the hours available to perform a task

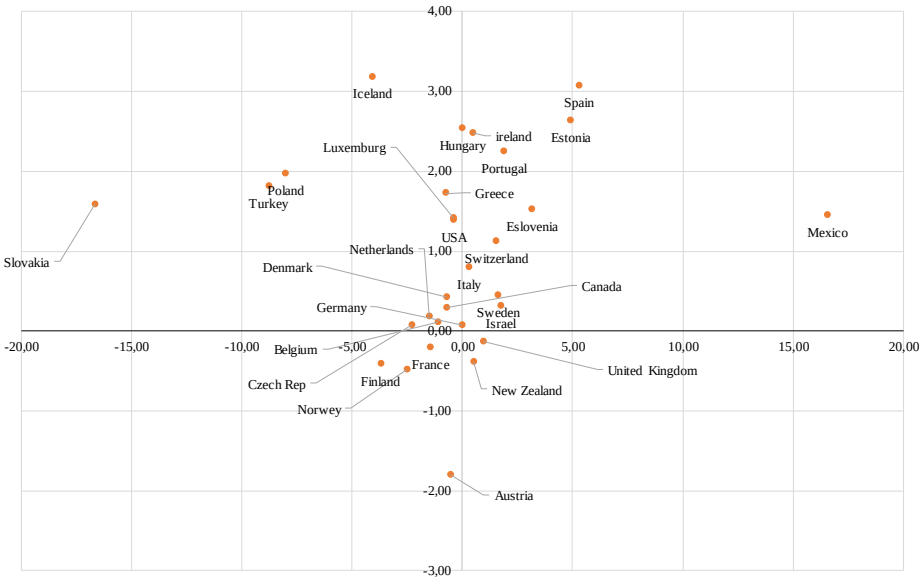


Figure 3: Use of the labor factor with average educational level in OECD countries, 2015 (OECD, 2016)

In the case of the average level of education, something similar happens (figure 3), although according to data from the OECD (2016), the proportion of foreigners - nationals is usually lower at this level, although it is worth highlighting here as extreme opposite cases. Mexico and the Republic of Slovakia.

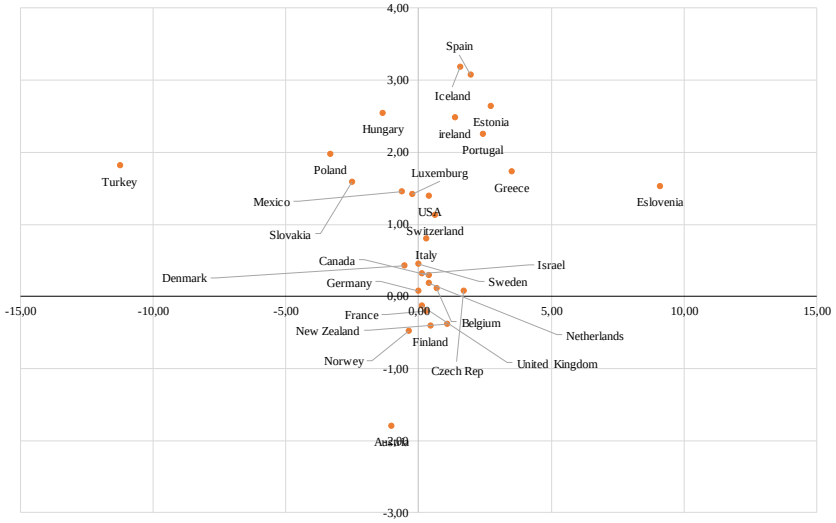


Figure 4: Use of the highly qualified labor factor in OECD countries, 2015 (OECD, 2016)

For the high educational level, with normally better paid jobs, the number of national employed persons is usually higher than that of employed immigrants (OECD, 2016). In the case of Germany, the national worker with high qualifications is significantly higher than the immigrant worker, and the latter have less impact on labor productivity when compared to immigrants with lower educational level, although in all cases the labor productivity depends little of the use of foreign labor. When looking at the results for the United Kingdom, we see that despite the number of immigrants it receives, the contribution of foreign labor for a low, medium and high level of education is usually of little relevance.

Finally, in Spain, the number of highly qualified immigrant workers is not as high as in the rest of educational levels, and it is also where the impact on labor productivity is lower when compared to lower educational levels. This situation was already analyzed by the theory of the dual labor market (Piore, 1979). In the more developed countries, the labor market has two relevant segments: the tertiary sector, for highly qualified workers, and the primary segment, for less qualified workers, which is a less efficient segment with lower wages (Jennissen, 2004; Massey et al., 1993; Doeringer and Piore, 1971). On this issue say that low-skilled jobs would be accepted mostly by immigrants, since native workers usually reject them, which ends up assuming a lower productivity of immigrant workers. In the same way, local workers would lose competitiveness, being less active and flexible in the labor market (Ciarniene, Kumpikaitė, 2011, Massey et al., 1993). In spite of everything, it can be affirmed that highly qualified immigrants are progressively becoming an important engine for economic growth in some countries, given that, among other advantages, they strengthen the country's innovation, by allowing for an increase in applied research (measured, for example, by increasing the number of patents), basic research (measured, for example, by the increase in scientific publications) and the creation of companies, which benefits the host country (Miranda-Martel et al, 2017; Mihi-Ramirez et al., 2016; Abdelbaki, 2009; Jaffe, Trajtenberg, 2002). This is an issue that is gaining relevance given that the number of skilled migrant workers is growing, and at the same time, the market increasingly demands more qualified workers with greater capacity for adaptation, although not all countries are equally attractive. for them, because there are strong barriers such as the facilities to enter the country for this type of workers, as well as the lack of incentives to attract qualified migration (Mourre, 2009). In other words, productivity does not depend only on resources or the situation of the economy, but increasingly depends on the ability of countries and companies to attract and retain talent (Miranda-Martel et al., 2017).

3. THE PRODUCTIVITY OF CAPITAL AND MIGRATION

The productivity of capital shows the efficiency with which capital is used to generate production (OECD, 2016). In relation to this we could refer to the theory of global systems, which explains the processes of migration in terms of an interaction between different societies or countries. Jennissen (2004) emphasizes that the theory of global systems contributes to a better understanding of migration processes between countries that are distant from each other. This theory was first proposed by Wallerstein (1974). This author took into account the optimal allocation of capital and goods between the regions located at the center of the entire economic system and its peripheral and semi-peripheral components. Thus, the flow of production and market factors (productivity of labor and capital) makes the whole system more efficient and more profitable (Massey et al., 1993). The productivity of capital is measured as the ratio between the volume of production, measured by GDP, and the volume of capital inflow, defined as the flow of productive services that capital contributes to production, that is, capital services. According to the OECD (2016), data on gross fixed capital formation by type of asset are used to estimate productive capital stock and calculate an aggregate measure of total capital services according to the System of National Accounts 2008. Capital services experienced strong growth in recent years in most of the OECD countries, although after the crisis only in some of these countries such as Ireland, Germany or the United Kingdom grew positively, mainly due to the weak recovery of investment levels (OECD, 2016). Another element to be considered in the study of capital productivity is the intensity of capital, which refers to changes in the use of capital services per hour worked, that is, the capital employed per worker (OECD, 2016). In recent years (2004-2014), the contribution of capital intensification to productivity, that is, changes in the volume of capital services in relation to the hour worked, is lower, especially after the reduction in the investment and production adjustments in the face of lower demand.

This situation is especially noticeable in countries such as the United States, Sweden, Finland, Italy and Portugal (figure 5).

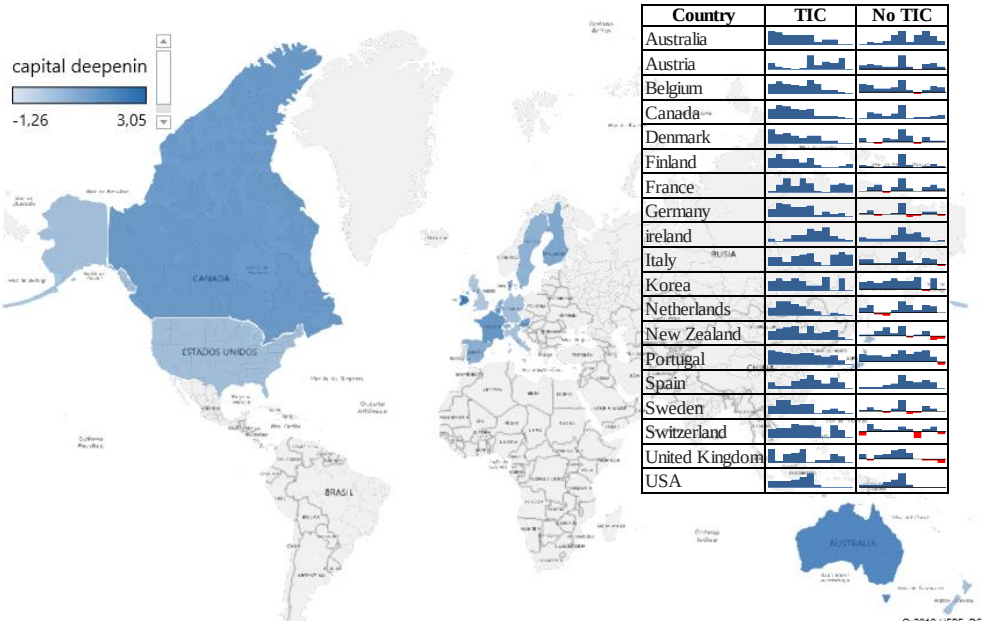


Figure 5: Growth of capital intensification in OECD countries in 2015 and its evolution in the period 2004-2014 (OECD, 2016).

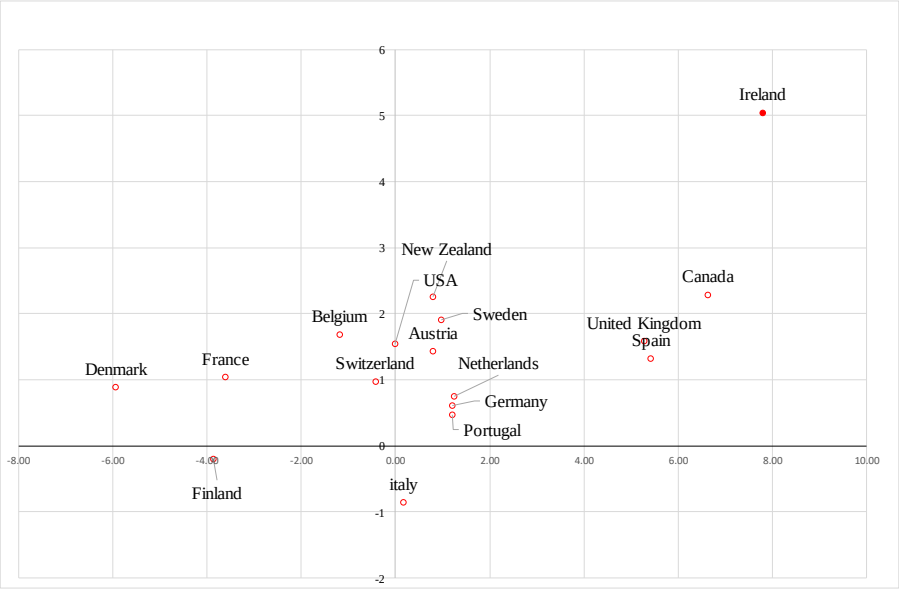
Given the importance of innovation and technology for economic growth, this variable is usually analyzed by differentiating between companies focused on information and communication technologies, ICT, or non-ICT intensive companies. Investment in ICT allows new technologies to stimulate the production process, being considered an important driver of productivity growth (Mourre, 2009). Investment in R&D-intensive products not only helps to expand the technological frontier, but also increases the ability of companies to adopt existing technologies, playing an important role in productivity performance (OECD, 2016). (See table 1). Capital services in companies focused on information and communication technologies, ICT, represented in the last decade between 0.2 and 0.6 percentage points of GDP growth, although in recent years it has been decreasing. In the case of non-intensive ICT companies, between 2004 and 2014 the highest contributions were recorded in South Korea, Portugal and Spain, although in recent years there are few countries that show growth, as is the case of Ireland and Canada (see figure 6). The growth of capital services was intense since 1985 in most of the countries analyzed, coinciding with the technological development that takes place in the 21st century and until the beginning of the economic crisis, when it begins to fall markedly in ICT-intensive companies, while in non-ICT companies it maintains its growth in countries such as Canada, Ireland and Spain. Regarding the correlation analysis of the productivity of capital with respect to immigrants for 2015, this revealed significant associations in the case of low-skilled immigrant workers and capital services of non-intensive ICT companies. Next, we show these results in table 2 and figure 6.

Table following on the next page

Table 2. Analysis of correlations of the variation in productivity in OECD countries, 2015.

	Foreing L	Native L	Foreing M	Native M	Foreign H	Native H	Capital Deepening	Capital Deepening, ICT	Capital Deepening, non ICT	Capital Services	SERVICIOS DE CAPITAL TIC	Capital Services, non ICT	multifactor productivity
Foreing L	1												
Native L	0.3293	1											
	0.0756												
Foreing M	-0.3356	-0.2211	1										
	0.0698	0.2404											
Native M	0.0338	0.5099*	-0.0661	1									
	0.8591	0.004	0.7285										
Foreing H	0.1608	-0.1462	0.4411*	0.101	1								
	0.3958	0.4407	0.0147	0.5953									
Native H	-0.0043	0.3552	0.0894	0.4627*	0.1874	1							
	0.9821	0.0541	0.6385	0.01	0.3215								
Capital Deepening	0.1283	-0.029	-0.3085	-0.0206	-0.1667	-0.0048	1						
	0.6237	0.9122	0.2283	0.9374	0.5224	0.9854							
Capital Deepening, ICT	-0.091	0.2686	-0.0867	0.1956	0.1244	0.0964	0.3837	1					
	0.7284	0.2973	0.7407	0.4519	0.6342	0.7129	0.1285						
Capital Deepening, non ICT	0.1784	0.0094	-0.2741	0.0084	-0.179	0.0728	0.9655*	0.1906	1				
	0.4933	0.9713	0.287	0.9746	0.4918	0.7813	0	0.4638					
Capital Services	0.5389*	0.0856	0.1716	0.096	0.2049	0.0644	0.5059*	0.1421	0.4227	1			
	0.0256	0.7439	0.5101	0.714	0.4303	0.806	0.0383	0.5865	0.0909				
Capital Services, ICT	0.1793	0.3202	0.1828	0.2536	0.3288	0.1327	0.1565	0.8304*	-0.0585	0.4873*	1		
	0.491	0.2103	0.4826	0.3261	0.1975	0.6116	0.5486	0	0.8238	0.0473			
Capital Services, non ICT	0.5959*	0.1181	0.172	0.1205	0.1756	0.1361	0.5713*	-0.0007	0.5496*	0.9679*	0.2996	1	
	0.0116	0.6515	0.5093	0.645	0.5001	0.6025	0.0166	0.9979	0.0223	0	0.2428		
multifactor productivity	0.4511	0.3076	-0.0384	0.2985	0.0311	0.3003	0.7063*	0.1734	0.7333*	0.6651*	0.2078	0.7578*	1
	0.0691	0.2298	0.8836	0.2446	0.9058	0.2416	0.0015	0.5058	0.0008	0.0036	0.4236	0.0004	

Correlation coeficint by pairs, first line
Significance (p value), second line
**p<0.05*



Graph 6: Capital services in companies that are not intensive in ICT and immigrant workers with low educational levels in OECD countries, 2015 (OECD, 2016).

In the case of immigrant workers with low educational levels, the results by country are in line with the behavior of recent years (see figure 7), highlighting the case of Ireland and Canada. Although the level of wages of unskilled workers is low, if the growth of capital services leads to a rise in wages, this situation will attract more immigrant workers (Mourre, 2009). In the case of Spain, this has not happened, non-ICT companies tend to develop activities of lower added value that employ low-skilled workers in exchange for lower wages. Less skilled workers, especially foreigners, are the ones who concentrate most on this type of activity.

If, in addition, we bear in mind that the moderate growth of capital services in this case has been passed on mainly to the owners of the factors of production, to shareholders, etc., we can conclude, therefore, that the productivity of capital in the case of immigrant workers, it has not made a great contribution to the growth of the Spanish economy.

4. CONCLUSION

Given the importance of productivity for economic development and the growing importance of migratory flows, in this article we have conducted an analysis of labor and capital productivity in OECD countries, including an analysis of the role of immigrant workers and the study of the main migratory theories. According to the classical theory, countries that offer greater incentives in economic terms, such as a higher level of wages or employment, are more attractive to immigrant workers. This issue is increasingly important at a time when, in general, the growth of productivity is low, especially when taking into account that productivity depends not only on the economic resources available in each economy, but also on the talent . In this sense, given that the more qualified workers are increasingly migrating to countries with more attractive conditions, in the long term this is detrimental to the productivity of the countries of origin, and, therefore, to their growth.

When analyzing the data of immigrant workers and unemployment rates in the OECD countries, we observe how, after the crisis, employment, especially in the case of foreign workers, has been reduced especially in those countries most affected by the crisis, such as Spain , Greece or Portugal, which has had a negative impact on the productivity of these countries. In terms of labor productivity, the indicators developed by the OECD have been used in this work. Therefore, labor productivity and the use of the labor factor are included here. There has been a downward trend in labor productivity in the OECD countries analyzed, which has affected the growth of GDP per capita. In the case of Spain there is a growth in temporary labor productivity, which could be explained, in part, more than by greater innovation, due to the great increase in unemployment, which entails the division of labor among a smaller number of workers, and, therefore, the reduction of costs. In relation to labor productivity and immigrant workers, it has been observed that its impact is relevant in the case of the productivity component called the use of the labor factor, and there is a positive relationship in all educational levels analyzed. In the case of Spain, this component of productivity has greater growth in the case of workers with lower educational levels.

The most plausible explanation rests once again in the greater fall of immigrant unemployment of lower qualification. In comparison with other countries, the use of the immigrant work factor is greater in Spain, that is, the hours actually employed by immigrant workers in relation to the total hours of the working day is higher, which implies that the adjustment in the production (via new distribution of tasks) has been based here more on the layoffs of foreign labor, thus reducing labor costs and increasing efficiency. However, given that the percentage of foreign workers in Spain is low and that low-skilled work is used in activities with low added value and low wages, the final effect on growth can be said to be very limited. In this paper we have also analyzed the productivity of capital, that is, the efficiency with which capital is used to generate production. Here we have included the evolution of capital services and capital intensity. The strong growth of capital services was held back by the economic recession for most of the countries analyzed. In terms of capital intensity, that is, changes in capital employed per worker, a reduction has also been observed in recent years. Regarding the productivity of capital and immigrant workers, the results of our analysis showed significant associations in the case of low-skilled immigrant workers and the capital services of non-intensive ICT companies, highlighting the growth of countries like Ireland and Canada.

In Spain, the growth of capital services in relation to immigrant workers is moderate, and in line with the previous conclusions, given that non-intensive ICT companies develop activities of low added value, it is concluded that productivity of capital, in the case of immigrant workers, does not have a great effect on economic development either.

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EVALUATION OF STATE FINANCIAL ASSETS IN THE FORM OF SHARES AND STAKES IN ENTERPRISES OWNED BY THE REPUBLIC OF CROATIA

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ABSTRACT

The assets of the state and of local and regional government consist of financial and non-financial assets. The state and local and regional government may establish legal entities or acquire shares or stakes in companies, institutions and other legal entities if such acquisition functions as the execution of public services and activities in the public interest. The Act on the Management and Disposal of Assets Owned by the Republic of Croatia regulates the jurisdiction of authorities regarding the management and disposal of state assets, and the establishment and management of the State Assets Register. In terms of state financial assets, the Register should contain a list of relevant data on shares and stakes in state-owned companies. Asset valuation is carried out on an accrual basis with the historical cost method which means that assets are shown at their book value and revalued amount. This paper explores and critically evaluates the approach to shares and stakes evaluation and measurement in enterprises owned by the Republic of Croatia (hereinafter Croatia). It analyses the theoretical and legal basis for the application of such an approach and the advantages and disadvantages of applied valuation rules. The paper compares existing evaluation practice in relation to the requirements of the International Public Sector Accounting Standards (hereinafter IPSAS) and the application of the fair value concept.

Keywords: *Croatia, evaluation, shares, stakes, state financial assets*

1. INTRODUCTION

Given the specific characteristics of state (public) assets, there are different approaches to their coverage, measurement and recognition. Different authors have investigated the scope and issues of measurement and recognition of state property (Bond and Dent 1998, Tanzi and Prakash 2000, Christiaens J. 2004, Christiaens J. 2006, Grubišić, Nušinović and Roje 2009, Ouda, Hassan AG 2016, Yiu, CY, SK Wong and Y. Yau, 2006). At the international level, IFAC through the Public Sector Board publishes and encourages the application of IPSAS, and affiliated professional associations in developed countries continually explore and shape financial reporting standards that relate to accounting monitoring of emerging forms of state property (the New Zealand Property Institute, the New Zealand Treasury Accounting Policy Team, the Australian National Accounting Standards Board). Scientists and international and national regulators are making efforts to establish a system of coverage, classification and valuation of state property that will provide complete and relevant information on state property and thereby create the prerequisites for effective asset management and for the responsible implementation of public property management. The property of Croatia (hereinafter "state property") is financial and non-financial assets owned by the state and local and regional self-government units (Budget Act, Official Gazette 87/08, 136/12, 15/15). For the prudent and high-quality management and disposal of state assets, it is necessary to provide legislative and institutional prerequisites, including a strategy and management plan.

The legislative framework for state property management is provided by the Act on Management and Use of Property Owned by the Republic of Croatia (Official Gazette 94/13, 18/16, 89/17), and the institutional framework is ensured by the state property management authority (since 2017, the Ministry of State Property, and before that the State Property Management Office). In 2013, for the first time, the State Property Management and Disposal Strategy was adopted for the period 2013–2017 (Official Gazette 76/13). The basic assumption for the implementation of this Strategy is that all state property is expropriated and disclosed in state bookkeeping. According to Article 106 of the Budget Act (Official Gazette 87/08, 136/12, 15/15) the state body competent for the management of state property (the Ministry of State Property) is obliged to make a list of state property with the status of 31 December of the year for which the inventory is compiled and submitted to the Ministry of Finance for the purpose of preparing individual financial statements and consolidated financial statements up to the level of the general government. It follows from these provisions that the legislator's intent is to link the regulatory framework for the management and the disposal of state property with accounting and financial data on state property. The practical implementation of all this results is in difficulties, primarily because the implementing regulations are incomplete or are not harmonised (Vašiček 2016). The subject of this paper therefore focuses on the presentation of state property of Croatia in the realm of financial assets, such as shares and equity shares. So far, research has shown that most financial assets of the state lie in companies in which the state has a majority or minority holding. Research on the general government level suggests that general government financial assets in Croatia compared to other European countries are at least diversified and have not been transformed into marketable instruments that would enter the capital market (Bajo 2011). Most of the general government financial assets in Croatia consist of shares and, in particular, other non-marketable or transformed shares, irrespective of whether or not they are listed on the financial market (Bajo 2011). The paper starts from the hypothesis that financial assets in the form of shares and equity holdings owned by Croatia have not been satisfactorily recorded, measured, recognised and disclosed. The inadequate database of financial assets owned by Croatia is reflected in the efficiency of the management and disposal of this property and in the assessment of the effectiveness of the use of this property.
For the given purposes, the following areas are investigated:

- the accounting framework for the measurement, recognition and disclosure of financial assets in accordance with IPSAS and the National Accounting Framework;
- the legislative and institutional framework which encompasses the classification of state property in the Republic of Croatia, the scope of the State Property Register (hereinafter SPR) and the disclosure of financial assets in the SPR;
- the compliance study of financial assets in the SPR with requirements for the measurement, recognition and disclosure of financial assets in accordance with IPSAS and the National Framework.

The study is of a qualitative nature and is based on secondary sources, including academic and professional literature in the field of research. Empirical research is carried out using publicly available databases, primarily the SPR (the State Property Ministry 2017) and publicly available financial statements.

2. DEFINITION AND ACCOUNTING FRAMEWORK FOR THE MEASUREMENT, RECOGNITION AND DISCLOSURE OF STATE PROPERTY

2.1. Definition of state property

Recognition of public property, its classification, measurement, recognition and disclosure in financial statements depend on the goals and purpose of financial reporting, i.e. the type of

information required. An acceptable classification of state property includes the following group or groups:

- cash
- financial assets
- tangible assets:
  - inventories
  - long-term tangible assets such as equipment and buildings
  - infrastructure
  - inherited property (historical-cultural heritage)
  - defence resources
  - natural wealth
  - property of the community.
- non-tangible assets (IFAC 1995: 7–13).

A comparison of the coverage and classification of state property in Croatia according to the two key legal frameworks of the Budget Act and the Act on the Management and Use of Property Owned by the Republic of Croatia point to differences, so that the data are not comparable without further adaptation and clarification. According to the Budget Act, assets are divided into nonfinancial and financial assets within which a group of shares and equity holdings are divided into domestic, foreign, and equity holdings in credit institutions and other financial institutions in the public sector and outside the public sector and equities and shares in companies within and outside the public sector. According to the Act on the Management and Use of Property Owned by the Republic of Croatia, assets are divided into shares and business shares in companies owned by Croatia and by other legal entities established by Croatia, as well as real estate, movables, receivables and other assets owned by Croatia. Asset allocation in Croatian budget accounting places emphasis on financial and non-financial assets that are reported in individual and consolidated financial statements according to the obligatory economic classification. The consolidation of financial statements for the general government is under the jurisdiction of the Ministry of Finance of the Republic of Croatia.[1] The Ministry of Finance does not publish a consolidated financial position report (Balance Sheet) for the general government which implies that data on state financial assets are not publicly available in aggregated form. The presentation of state property based on the classification of assets under the Act on the Management and Use of Property Owned by the Republic of Croatia and the State Property Register and other implementing regulations is publicly published in the form of the SPR (State Property Office 2017). Precisely because of the availability of these data, this paper examines the content and quality of disclosure of financial assets owned by Croatia in the SPR.

2.2. Accounting framework for measurement, recognition and disclosure of state assets

In addition to the classification of assets, there is also the question of the value of the asset statement, and its initial and subsequent recognition and measurement. The measurement and recognition of assets is related to the accounting basis used as a fundamental feature of the accounting and reporting system. In this respect, with regard to the recognition of state property, it investigates the possibility of reporting by applying the accounting basis for the occurrence of the event.

[1]According to the provisions of the Budget Act, the term "general budget" is the central government budget (including the central state and extra-budgetary users of the central government) and the budgets of regional self-government units and their extrabudgetary users. The term extrabudgetary user refers to extrabudgetary funds (social security funds), companies and other legal entities in which the state or local and regional self-government units have a decisive influence on management.

For the purpose of determining the value of assets according to the accounting basis of the occurrence of the event and according to IPSAS (IFAC 2016: 106-), the following measured bases may be used: purchasing price, current price, market price, replacement costs, net sale price, and value in use. These measurement bases in the case of state property are supplemented by measurement according to the symbolic value. Symbolic value is an estimated value for the purpose of not presenting assets at their real value, fair value and recoverable amount, but to present certain asset items in the financial statements without any pretence of determining their real value. The reasons for this are: the property is not intended for sale and knowledge of the precise real value is not necessary; the property remains permanently owned by the state and only in essence is it necessary to have accurate records of its existence (Vašiček and Vašiček. 2016: 164). IPSAS which regulate the area of recognition, measurement and presentation of financial assets are: IPSAS 28 - Financial Instruments - Presentation; IPSAS 29 - Financial Instruments – Recognition and Measurement; and IPSAS 30 - Financial Instruments - Disclosure with an emphasis on the nature and extent of the risks arising from financial instruments. According to these standards, the initial recognition of financial assets is at fair value plus transaction costs directly attributable to the acquisition of the financial assets if the financial assets are not classified for measurement at fair value through surplus/deficit. For the purpose of measuring financial assets after initial recognition, IPSAS 29 classifies financial assets in four categories (IFAC 2016:):

- financial assets measured at fair value through profit or loss that includes held-for-trading assets or short-term profit and any other financial assets that the entity assigns as such;
- held-to-maturity investments such as debt securities and preference shares with a repurchase obligation that the entity explicitly intends and is able to hold up to maturity;
- loans and receivables;
- available-for-sale financial assets that include all financial assets that are not classified in any of the preceding three categories.

After initial recognition, an entity should measure financial assets, including derivatives that are assets at their fair value, without any deduction of transaction costs that may arise during the sale or other redistribution, except for loans and receivables, held-to-maturity investments measured at amortised cost using the effective interest method, equity instrument investments that do not have a specific market price in the active market and whose fair value cannot be reliably measured, and derivatives that are related to and must be settled by delivering such unbeatable equity instruments that need to be measured at cost (IFAC 2016). All financial assets other than those measured at fair value through profit or loss are considered for impairment. In Croatian budget accounting, IPSAS are not directly implemented. Budget accounting is prescribed in the Rule Book on Budget Accounting and the Accounting Plan of the Budget, which, among other things, prescribes the principles of disclosure of assets, liabilities, own resources, income, and expenses. Most of the disclosures required by IPSAS are not included in the aforementioned national legislation. Measurement, recognition and recording of financial assets according to the budget regulations in Croatia are outlined below.

3. COVERAGE OF THE SPR AND THE QUALITY OF THE FINANCIAL ASSET STATEMENT IN THE SPR

In accordance with the Act on Management and Use of Property Owned by the Republic of Croatia, management is entrusted to the Ministry of State Property as a legal successor to the Central State Office for State Property Management and the Restructuring and Sales Centre (CERP). For the purpose of more effective asset management in the portfolio of shares and business interests in companies that are of special and strategic interest, the Government issues a special Decision on the establishment of lists of companies and other legal entities of strategic

and special interest to Croatia (Official Gazette120/13,74/15,44/16.). The Decision differentiates among:

- Commercial interests of strategic interest in Croatia with economic achievements and strategic objectives: legitimate and effective implementation of transferred public powers, security, health insurance, important infrastructure, uninterrupted supply of the population and business entities, and the provision of economic services in the interest of citizens and the state, whose revenues are generated on the basis of the public powers granted in which the state participates in determining the price of the goods and services; and
- Enterprises of special interest in which Croatia has a majority stake, which are not infrastructure, energy, etc., which do not need restructuring, recapitalisation, or privatisation in full or in part, and which achieve high added value and profits.

The Centre for Restructuring and Sales manages the shares and business interests in companies owned by Croatia and its bodies, and which are not identified as companies of strategic and special interest to Croatia (Centre for Restructuring and Sales, 2016). In the management of state property in the Republic of Croatia, emphasis is placed on the formation of the SPR. The SPR is a central register of state property that unifies all forms of property owned by Croatia and its related liabilities. The entry of data into the SPR, which was first published on 15 January 2014 on the website of the then State Office for State Property Management, is based on the provisions of the Act on the Management and Use of Property Owned by the Republic of Croatia the Act on the State Property Register (Official Gazette 55/11) the Budget Act (Official Gazette 87/08, 136/12), and on the implementing regulations and instructions on the recognition, measuring and evidence of state property. These instructions link the accounting rules in budget accounting with data and information contained in the SPR. In accordance with the Instruction of the Analytical Register and the auxiliary book of financial assets, shares and stakes must contain at least the data and information prescribed by the SPR Regulation. Regarding the principle of the valuation of assets, all emerging forms of state property, individually and collectively, must be stated at cost of accounting, using the historical cost method. These instructions have led to a step forward in linking the data from the SPR with asset records in the accounting of the owner and user of state property in terms of asset coverage and its measurement and valuation. Unfortunately, although it could be expected that both the specific and detailed instructions regarding the procedures for measuring, recognising and recording assets or financial assets owned by Croatia would be outlined in the headings mentioned above, they are not specified. The following table shows the systematised data structure in the SPR for each asset class - shares, business stakes and real estate on the day of the first and last disclosure in 2014, as well as the data of last disclosure in 2015, 2016 and 2017. Given data are presented according to monthly data from the Registry of State Property disclosed in electronic media (http://registar-imovina.gov.hr/).

Table 1. SPR – structure and dynamics of disclosure (Ministry of State Property, 2017)

Structure and number of data	**Dates of data disclosure**				
	14.01.2014	**30.12.2014**	**28.12.2015**	**29.11.2016**	**31.01.2017**
List of shares	450	439	412	383	381
List of stakes	240	237	223	209	203
List of real estates which can be publicly disclosed	382,339	993,771	1,016,085	1,050,882	1,062,660

Existing forms of property represented in the SPR are real estate, shares and stakes in companies, while the register does not contain other forms of state property.

Certainly, the SPR needs to be supplemented in order to obtain the data required for entry into the Treasury's main book, to allow for the compilation of a comprehensive State Budget Balance (Jakir-Bajo, Vašiček 2014). Financial assets from the SPR are classified according to the basic accounts in the Budget Accounting Plan (Instructions on Type, Method of Collection and Content of State Property 2013). A comparison of the classification of publicly released data from the SPR and the classification data requirement in accordance with the Instructions indicates that the disclosure of data in the SPR is not in accordance with the Instructions. Data in the SPR are based on the data provided by the delivery obligators (owners and users of state property) and cannot confirm the completeness of these data. The Ministry of State Property states that the documentation of state property is dispersed in various records of state institutions (Ministry of State Property 2017). Certain forms of state property are also wholly omitted from accounting and other records because of their particularity and because of the applied accounting concept or because the data on these forms are incomplete. It should be taken into account that the prescribed rules of measurement and recognition of public property disclosure (Content of the Disclosure of the Type, Method of Collection and Content of Information and State Property Information and Guidance on Recognition, Measurement and Recording of Property Owned by the Republic of Croatia) are inadequate for practical application. This all leads to the conclusion that state property data recorded in the Registry are not complete and that the value of assets shown in the Registry are not fully aligned with the prescribed framework and thus do not have the reliability that is expected. The data in the Register are presented as the condition on one day and include: the name of the joint-stock company or legal entity / limited liability company, the place and registered office of the company, the security code, the personal identification number, the value of the share capital and the denomination of the currency, the number of shares issued and the nominal value of one share, the ownership of the Republic of Croatia, the percentage of ownership of the Republic of Croatia, the ownership of other state holders and the percentage of ownership of other state holders. The value of a share or stake is stated as the nominal value of the share capital of the company and the nominal value of one share. The ownership of Croatia and other state holders is expressed in the nominal value of ownership (corresponding to the number of shares held or stakes held) and as a percentage of the share of ownership in the total capital of the company. The basic feature of such a register of shares and business units in companies in the SPR is the static aspect of the data (on a particular date) and a statement on the nominal value of the share capital. The SPR does not contain data on changes in equity arising from operations (earned equity). Guidelines for maintaining data in the Registry do not anticipate the use of the fair value concept for the valuation of the State Property portfolio for shares traded on a stock exchange listing. For an illustration of this, an overview of two public companies of strategic interest for the Republic of Croatia, the Croatian Electric Power Industry (HEP) and the Oil Industry (INA) is presented. The statement includes a comparative view of the capital of the two listed companies according to available public sources.

Table following on the next page

Table 2. Statements of capital of companies of strategic interest according to data from the Registry of State Property, Basic Financial Statements and Stock Price Report of the Zagreb Stock Exchange (Registry of State Property, 2017; Zagreb Stock Exchange, 2017)

HEP group – data from SPR 31.01.2017	**HEP group – data from basic financial statements 31.12.2016 – in HRK thousands**	**INA - d.d. – data from SPR 31.01.2017**	**INA - d.d. – data from basic financial statements 31.12.2016.**	**INA - d.d. – data from Zagreb Stock Exchange – price in the period 15.12.2016. – 15.01.2017. Average price on the day**
Subscribed capital: 19,792,159 (in thousands HRK)	Subscribed capital : 19,792,159	Subscribed capital: HRK 9,000,000,000	Subscribed capital: HRK 9,000,000,000	13.1.2017 3,050,00. 12.1.2017 3,037.96 11.1.2017 2,817.80 10.1.2017 2,900.00 9.1.2017 2,900.00 5.1.2017 3,001.79 4.1.2017 2,994.07 3.1.2017 2,978.25 2.1.2017 2,873.46 30.12.2016 2,899.35 29.12.2016 3,047.25 28.12.2016 3,357.68 27.12.2016 3,199.59 23.12.2016 2,925.00 19.12.2016 3,010.00 16.12.2016 3,010.12 15.12.2016 3,116.67
Number of issued shares : 10,995,644	Revaluation reserves: 140,293	Number of issued shares 10,000,000	Reserves from profit: HRK 1,971,000,000 Revaluation reserves: HRK 216,000,000	
Nominal value per share: HRK 1,800.00	Retained income: 5,551,226	Nominal value per share**:** HRK 900.00	Retained income: 816,000,000 Loss of the current year: 1,418,000,000	
% of state property - 100%	Total capital: 25,483,678	% of state property - 44.84%	Total capital: 10,585,000,000	

The change in the value of financial assets shown in the SPR, i.e. the revaluation of shares and stakes, is prescribed and relates only to cases of the sale of shares and stakes. Prior to the disposal of shares and business interests in companies, it is necessary to evaluate the value of a company. An assessment of the value of a company must be carried out by a person authorised to conduct business advisory on capital structure, business strategies and related matters, as well as for consulting and services related to mergers and acquisitions in companies, in accordance with regulations on the capital market or the competent state body (Centre for Restructuring and Sales). The choice depends on the portion of shares or business stakes of the state in the company's share capital. Exceptionally, if a company's shares are listed on a regulated capital market over the 12 months before the date of the sale decision, there is no obligation to make a valuation of the company's value. It can be concluded that the issue of the subsequent measurement of shares and stakes in the SPR is linked to a disposal decision that

implies the sale of shares or stakes owned by the state. Only then is it possible to identify a value that can be characterised as a market value. The conducted research on publicly available financial assets owned by Croatia confirms the hypothesis that financial assets in the form of shares and equity holdings owned by Croatia are not recorded, measured and recognised and disclosed in a satisfactory manner. This further confirms the following:

- Information publicly available in the SPR does not include all forms of state property and data input (data entered by data subjects themselves - owners and users of state property) and the completeness of the input is not verifiable;
- Classification of assets in the SPR and asset classification in the financial statements by the classification of budget accounting is not methodologically comparable and usable without further adjustments;
- Progress has been made in linking the data from the SPR to the accounting records of assets and positions in the financial statements, but the implementation instructions for asset valuation are not complete and accurate for practical application;
- The statement of financial position is based on the modified accounting principle of the event using the historical cost method (cost of acquisition) and is applied at initial measurement, and the subsequent measurement of assets is carried out only in cases of alienation and disposal of property;
- a statement of financial assets owned by Croatia available through the SPR is based on a statement of shares and stakes in companies as a data item on a specific date and is expressed as the nominal value of the share capital;
- Changes in the value of shares and stakes owned by Croatia are not monitored in the SPR, and the subsequent measurement of financial assets is related only to the sale of shares and stakes.

In further consideration of the lack of evidence of shares and stakes owned by Croatia, focus is placed on the example of companies of strategic interest in which the state appears to be the predominant owner and significant investor. Theoretically speaking, the value of public companies using infrastructure assets in the balance of the state or the local unit with the accounting words can be stated either through capital or through assets. In the first case (through capital ownership), this is done through the possession of a company or the share of a company that is predominantly owned and controlled by the state (from 50% +1 shares up to 100% ownership), with significant ownership and control (over 25% and up to 50% of the shares), or without significant ownership and control at a percentage lower than 25% of the shares. Another case (asset disclosure) is the disposal of property that is owned by the state or a local unit as its property, which may be given to management or use to a public company. As already noted in the state records and local units, the value of public companies using infrastructure assets is expressed as a percentage of ownership of the state or local unit in the nominal value of ownership (corresponding to the number of shares or stakes held) and as a percentage of ownership in the total capital of a company. It has already been emphasised that the basic feature of the register of shares and stakes in companies in the SPR is the static aspect of the data and the statement of the nominal value of the share capital which does not reflect changes in capital. The aforementioned method of disclosure raises the question concerning the extent to which such capital-share data reflect the value of a state property regulated by a company, i.e. state as a predominant owner of a company of strategic interest.

The question of where and how public assets (a public good) are disclosed in the financial statements of companies of strategic interest has been resolved differently. Infrastructure assets can be stated:

- in the balance sheet of a company (as its property);

- in a sub-account of a company where the public (infrastructural) assets and public capital are listed separately; or
- in off-balance sheet records (foreign assets with right of use).

For example, companies that manage public roads are obliged to record assets belonging to Croatia separately (Article 94 of the Road Act, Official Gazette, 2011). According to the Railway Act, the funds with which Croatia finances the maintenance of railway infrastructure and the regulation of rail transport are separated from the infrastructure manager's business records (Article 21 of the Railway Act, Official Gazette 2013c). The issue of infrastructure asset valuation in the financial statements of public companies additionally focuses on the possibilities of a different treatment of sources of financing infrastructure assets. Infrastructure assets are often financed from revenues intended for infrastructure construction (e.g., road fees, water fees, etc.), service fees, but also from the state or local unit budget, from concession fees and other dedicated sources. A public limited company may use assets destined to build an infrastructure differently. This may result in the non-disclosure of the property in the financial statements of public companies. Public companies are obliged to comply with the Accounting Act (Official Gazette, 2015) and are subject to the applicable financial reporting standards or the International Financial Reporting Standard and the International Accounting Standards (IFRS). These transfers of money and contracts for co-financing infrastructure construction can be treated in duplicate, according to the above-mentioned regulations and rules. By accounting, these funds can be treated in the financial statements of the recipients of these funds (public companies) either as capital (capital approach), or as revenue (gain approach). The capital approach implies that the amount of funds received that is co-financed by the construction of infrastructure assets increases the share capital of a public company. The gaining approach implies that the company's assets are increased when the investment is completed and the financial funds for which the investment is co-financed by others is placed in "deferred income", so that each year part of this deferred income is recorded in a "real" income (in amount corresponding to the portion of the amortisation of this asset and in the part it was co-financed (Vašiček, Rogošić 2009: 145). The application of the gaining approach increases the profitability of the company and has the consequence that infrastructure assets are not visible in the reports of public companies as an increase in public capital. Linking ownership data in shares or business interests in companies of strategic interest that are included in the SPR as a percentage of the share of the capital based on the nominal value with the data from the financial statements of the listed companies in which the public property (public good) is expressed differently, the value of public property cannot be uniquely assigned. Indicating the acquisition of infrastructure assets from public sources as deferred revenue leads to the increase of public property (public capital) not being visible in the state or local unit reports. The expression of the acquisition of infrastructure assets from public sources through capital has the effect of nominally increasing the investment of a state or a local unit in the capital of a company, as is evident in the financial statements of public companies, but is not visible in the SPR as shares or business shares are reported as the share of ownership in the capital under the nominal amount. In cases where a company is not wholly owned by a state or a local unit, the mentioned approaches come to intense. A beneficial approach is favoured by external shareholders because it raises business profitability. At the same time, there is no indication of an increase in public property financed from public sources in the state or local government's financial statements. Consolidation of the reports of strategic interests and budgets can partially resolve the issue of full disclosure of public infrastructure assets. However, if a dilemma arises with a property, state unit or company that is not wholly owned by a state or local unit, then consolidation will not solve the problem of the correct recognition of the property.

4. CONCLUSION

Analysing available sources and databases in the legislative, institutional and accounting framework for state property management, it can be concluded that in the Republic of Croatia, state property is not properly classified, recorded or evaluated. Legislative and institutional shifts have been made to create the prerequisites for more effective state property management, but there is still plenty of room for improvement. In the reform process of state property management, emphasis was put on the formation of the SPR. The basic feature of the register of shares and stakes in companies in the SPR is the static nature of the data and the statement of the nominal value of the share capital that does not include the changes in equity and does not imply the use of the fair value concept for the valuation of the public assets portfolio for shares of companies quoted on the stock exchange. The aforementioned method of disclosure raises the question of to what extent such capital share data reflects the value of a state property regulated by a company, i.e. state as a predominant owner of a company of strategic interest. It can be concluded that the data from the SPR cannot simply answer the question of the value of the financial assets owned by the state and that only the input data are more accurate in determining the value of a particular item of a financial asset. This is also indicated by the various approaches to public property records in the financial statements of public companies, which may have the effect that public assets are not visible either through state shares in publicly owned companies (state property balance) or through the assets of public utility companies (balance of public trading companies companies). These deficiencies in the financial assets owned by Croatia prevent the high-quality management of financial assets and impede public management in deciding on the management and disposal of public property.

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CORPORATE CASH HOLDINGS: AN EMPIRICAL INVESTIGATION OF SOUTH-EAST EUROPEAN COMPANIES

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ABSTRACT

The purpose of this paper is to build a synthesis of the three theoretical models of corporate cash holding motives: trade-off theory, pecking order theory and free cash flow theory, and to examine their relative contribution in explaining actual corporate cash holdings in South-East European countries. We are specifically interested in the issue of whether firms actively pursue implicit cash targets or whether cash holdings are deemed unimportant and therefore passively adjust to (more important) financial decisions taken elsewhere in the firm. This paper investigates the empirical determinants of corporate cash holdings for a sample of 877 firms from ten South-East European countries (Bosnia and Herzegovina, Bulgaria, Montenegro, Croatia, Greece, Romania, Macedonia, Slovenia, Serbia and Turkey). Using their financial data for the period 2005-2015, we apply a panel regression model, involving cash ratio as a dependent variable and several firm characteristics as independent variables that closely determines the corporate cash holdings. The results of the analysis found supportive evidence of a pecking order theory of cash holdings according to which the firms do not have a target optimal cash level, and cash is used as a buffer between retained earnings and investments of the firm. In particular, we found that corporate cash holdings in the SEE countries decrease significantly with the net working capital as a cash substitute, leverage of the firm, cash flow uncertainty, and capital expenditures. Cash holdings in SEE countries increase significantly with the firm size, cash flow and debt maturity. This study will contribute in understanding the factors affecting corporate liquidity by financial managers in the South-East European countries.

Keywords: *agency costs, cash holdings, liquidity, free cash flow theory, liquidity, pecking order theory, financing hierarchy*

1. INTRODUCTION

Corporate cash holdings in SEE countries are not so high as they are in UK and USA. This work is focused on the explanation of determinants of corporate cash holdings in the SEE region. Cash can be considered as the most liquid asset and at the same time a lower cost source of financing. In a perfect capital market, holdings of liquid assets are irrelevant (Opler et al. 1999). In such a world with no liquidity premium, holding of liquid assets has no opportunity cost, and the firm can rise external funds with zero cost. But, in the reality of imperfect and underdeveloped capital market as it is in SEE, managers trying to minimize the cost associated with external financing may find it optimal to maintain sufficient internal financial flexibility. The economics and finance literature have identified four motives for firms to hold cash: transaction motive, precautionary motive, tax motive and agency motive (Bates et al. 2009). All of them are explained through three theoretical models of the determinants of corporate cash holdings: the trade-off theory, the pecking order theory and the free cash flow theory. According to the trade-off model, managers trying to maximize the shareholder's wealth should determine the optimal cash level, that is the cash level at which the marginal benefits of cash holding are equal to the marginal cost of cash holdings. The cost of holding cash is the opportunity cost, since this asset earns low or zero return. The benefits of holding cash are wider, but the most commonly stated are these: i) cash is a safety reserve that can reduce the likelihood of financial distress and allows the firm to cover the unexpected loss; ii) it can be

used to finance a firm's activities and investments when other sources are restricted or costly; iii) holding cash avoids the cost of rising external funds and the need to liquidate other assets for providing funds. Keynes (1936) provides a theoretical foundation for determining the optimal holdings of liquid assets. An alternative view is that there cannot be determined the optimal cash level. Managers determine the optimal capital structure with an optimal level of net debt, defined as debt minus cash, thus cash is simply negative debt. This reasoning is present with the pecking order theory founded by Myers and Majluf (1984). This approach suggests that there is a financing hierarchy. A firm should finance its investment in the first order by accumulated internal funds, then with safe and risky debt, and finally with equity. That is due to the information asymmetries that make outside funds more expensive. Since there is not an optimal cash level, the cash holding of the firm is randomly determined from the relationship between the investments and retained earnings. If the internal funds are enough to finance investments, the excess cash is used to repay debt. In addition, when internal funds are not enough to finance investments, firms use external funds. The agency theory states that the interest of managers can be different from those of the shareholders, so the benefits and cost of holding cash can be seen differently by managers and shareholders. Managers can decide to hold an amount of cash that satisfies their own interest and is detrimental to the shareholders' wealth. In the free cash flow theory based on agency cost (Jansen 1986), managers aim at holding cash to increase their managerial discretion, and pursue their own objectives at the shareholder's expense. Entrenched management holds excess cash: i) as a risk safety reserve; ii) to reduce the pressure to perform well; iii) to avoid the market discipline; iv) to provide greater flexibility to realize its own goals like investing in projects of their own but not in the shareholder's interest; v) to avoid monitoring and control from the capital market's external financing; and more. In this paper we examine the empirical determinants of corporate cash holdings for a sample of SEE firms over the period of 2005-2015. We will try to explain how firm characteristics have a positive or negative impact on corporate cash holdings and will try to explain by referring to one of the three theoretical models described above. This paper is organized as follows. Section 2 gives an explanation of the firm characteristics as determinants of corporate cash holdings. Section 3 gives an overview of data and measures used in the analysis. Section 4 gives empirical results of the determinants of the corporate cash holdings. Section 5 offers our main conclusions.

2. FIRM CHARACTERISTICS AND CASH HOLDINGS

In this section, we provide a review of the firm characteristics that are relevant to the firm cash holding decision. In the previous work a couple of firm characteristics are noted as most relevant. We will explain how each of them have a positive or negative relationship to cash.

Firm size. According to the trade-off model, small firms are those that hold more cash, and large ones less cash. There are several explanations for this negative relationship. Firstly, there are economics of scale in cash management presented in the simple transaction cost model of demand for money by Moller and Orr (1966), Mulligan (1997). Secondly, the cost of rising external funds are larger for the small firms making those funds to be more expensive to the small firms than to the large ones. The cost for rising external funds is fixed and does not depend on the size of those funds. The fees of borrowing are uncorrelated with the size of the loan (Peterson and Rajan, 2003), also there are large fixed costs in public issuance (Barclay and Smith, 1995). Furthermore, large firms have less information asymmetry than small firms (Brennan and Hughes, 1991; Collins et al., 1981) which makes external funds costlier, and the borrowing is more constrained for small firms (Whited, 1992; Fazzari and Petersen, 1993; Kim et al., 1998). Thirdly, larger firms are more diversified, so they can sell assets to provide financing sources (Bates et al., 2009). Consequently, large diversified firms are less likely to

experience a financial distress (Titman and Wessels, 1988), and small firms are more likely to go bankrupt when facing financial distress (Ozkan, 1996). The transaction and precautionary motive states a negative relationship between cash holding and the firm size. The pecking order theory states a positive relationship. Larger firms presumably have been more successful and after controlling for investments they hold more cash (Opler et al., 1999; Ferreira and Vilela, 2004). Additionally, the free cash flow theory states a positive relationship. They argue that at large firms managers have more discretionary power over the firm investment and financial policies, arising from the larger shareholder dispersion, which leads to a greater amount of cash holdings. Also, Opler et al. (1999) argue that firm size is a takeover deterrent. A larger target requires more resources to be husbanded by the bidder, and a large firm can more easily use the political arena to its advantage, and finally we can expect large firms to hold excess cash.

Liquid assets substitutes. Net working capital less of cash consists of liquid assets that are considered a substitute for cash since it is common for firms to sell non-core assets in periods of economic distress (Lang et al., 1994), in order to provide liquidity. Besides this, the cost of converting non-cash liquid assets into cash is much lower as compared with other assets. In the case of cash shortage firms can provide cash by selling them, rather than raising funds through capital markets. Thus, according to the trade-off theory we can expect a negative relation between NWC and cash holding.

Leverage. Firms can raise cash through borrowing in the case of liquidity shortfalls, so the borrowing can be seen as a substitute for cash holding. Leverage can act as a proxy for the firm's ability to raise debt (John, 1993). But, cost of funds used to invest in liquidity increases as the ratio of debt financing increases (Baskin, 1987) that leads to decreasing cash holdings with debt increasing. In addition, if the debt is sufficiently constraining, then firms will use cash to pay debt (Bates et al. 2009). These arguments for the transaction motive states negative relations of the leverage with cash holding. However, the precautionary motive states a positive relationship. Here, firms with higher leverage tend to hold more cash in order to reduce the probability of financial distress, which is higher for the high debt companies. According to Acharya et al. (2007) hedging argument, the relation can be positive. By hedging with financial instruments, a firm can avoid situations where it has to borrow funds because of random variation in cash flow. Hence, firms for which hedging is expensive are expected to hold more liquid assets. We can see that trade-off states both the positive and negative relationship, according to the cash holding motive. According to the pecking order model, a firm's leverage, defined using net debt, reacts passively to changes in the firm's internal funds. As a firm accumulates internal funds, its leverage falls (Opler, 1999). Cash holdings fall when investment exceeds retained earnings and grows when investment is less than the retained earnings (Ferreira and Vilela, 2004). Accordingly, there is a negative relationship between leverage and cash holdings. The negative relationship is also predicted by the free cash flow theory, so firms with low debt hold excess cash (Opler, 1999). Managers will prefer holding low debt, in order to avoid monitoring and control by the capital markets, thus providing superior managerial discretion.

Cash flow. Kim et al. (1998) state that operating cash flow, especially the free cash flow, is a firm's ready source of liquidity, and thus a substitute for cash holding. Firm can use it to meet the operating expenditures and maturing liabilities. Thus, the trade-off models, from the transaction motive view, state a negative relationship between cash flow and cash holdings. On the other hand, firms with higher cash flow accumulate more cash, all else equal (Ferreira and Vilela, 2004, and Bates, 2009).

Such firms might have better investment opportunities, but this is controlled through other variables. This indicates a positive relationship in the pecking order theory, from a precautionary point of view. Cash flow uncertainty. The greater the firm's cash flow variability, the greater the number of states of nature in which the firm will be short of liquid assets (Ozkan and Ozkan, 2004). Similarly, firms with more volatile cash flows, and hence a higher frequency of cash flow shortfalls, need to accumulate more cash. Firms with cash shortage will not be able to undertake valuable investment projects and other growth opportunities, thus incurring a great cost of cash shortage. Firms with more volatile cash flows are expected to hold more cash in an attempt to mitigate the expected costs of liquidity constraints. An expected positive relationship among cash holing and cash flow uncertainty is also argued by Ferreira and Vilela (2004) and Bates (2009), but Ozkan and Ozkan (2004) didn't find any evidence to support the view that firms with more volatile cash flows hold more cash. For the precautionary motive, the trade-off theory states a positive relationship between cash flow uncertainty and cash.

Cash conversion cycle. CCC shows "the length of time a company's cash is tied up in working capital before that money is finally returned when customers pay for the products sold or services rendered" (Hutchison et al. 2007). According to Opler (1999) the firms with short CCC should have less liquid assets, so the trade-off theory states a positive relationship between cash holdings and CCC. Debt maturity. Firms that rely on short term debt financing, when renegotiating the credit terms can face constraints for the renewal of the credit lines, thus we can expect a negative relationship among cash holdings and debt maturity (Ferreira and Vilela, 2004). Otherwise, considering that firms with the lowest credit risk have better access to borrowing, it is expected that these firms will hold less cash for precautionary reasons, which would cause debt maturity to be positively related to cash holdings. But, the firms with debt rating tend to hold less liquid assets because the firms that have already accessed the capital markets are expected to have a lower transaction cost. Hence, Opler (1999) states that the static tradeoff model implies that firms with a higher debt rating hold less cash, whereas the financing hierarchy model implies the contrary, since firms that have done well have less debt and hence a higher bond rating.

Capital expenditures. Capital expenditures lead to creating of core and other assets that afterwards can be used as a collateral that increase the firm's debt capacity and reduced demand for cash, meaning that a positive relationship between CAPEX and cash is expected. But, according to Riddick and Whited (2009), increased investment by the company can lead to less saving and lower cash holdings, which eventually means a negative relationship. According to Bates (2009) capital expenditures could proxy for financial distress costs and/or investment opportunities, in which case they would be positively related to cash. The former arguments state a positive and negative relationship between CAPEX and cash holdings. With the static trade-off theory, firms with more capital expenditures have more liquid assets. In contrast, the pecking order theory states that firms that invest more should have fewer internal resources, and hence would accumulate less cash.

Investment opportunity set. Firms with high investment opportunity have a precautionary motive to hold more cash. The cash shortfall incurs an opportunity cost from missing out valuable investment opportunities with positive NPV. Firms with greater growth opportunities are expected to incur higher bankruptcy costs (Williamson, 1988; Harris and Raviv, 1990; Shleifer and Vishny, 1992). Since the value of the opportunities declines sharply in the case of bankruptcy, firms are motivated to hold more cash to avoid the financial distress. Hence, with the trade-off theory, the relationship between investment opportunity set and cash holding is positive. This also occurs with the pecking order theory. Here, because of the external financing,

especially raising capital through equity, the issue is costly because of asymmetric information an adverse selection problem. Consequently, firms must hold cash in order not to give up valuable investment opportunities and the opportunity cost associated with it. Also, in the presence of agency cost of debt that arise when the interest of shareholders differs from those of the debt holders. Myers (1977) finds that these costs are present in the growth of firms which use a risky debt. Probably they will pass up a valuable investment project because of the differences in the interest. Consequently, in a case of great agency cost of debt, the external financing is expensive and firms should hold liquid assets in order to avoid the cost of cash shortfalls. With the free cash flow theory there exists a negative relationship between investment opportunity and cash holdings. In the presence of agency costs of managerial discretion, the management holds cash in order to gain flexibility to pursue its own objectives at the shareholder's expense. They can undertake projects that the capital markets are not willing to finance.

Dividend payments. According to Opler et al. (1999) dividends are like cash substitutes, since the dividend-paying firms can cut the dividends and obtain the necessary liquidity. This implies a negative relationship. But, on the other hand dividend- paying firms have a precautionary motive to accumulate cash in order to avoid cash shortage for paying the regular dividend (Ozkan and Ozkan, 2004), which indicates a positive relationship. These arguments are with the trade-off theory. With the pecking order theory, the dividend payment lowers the information asymmetric cost. Firms that pay dividends are likely to be less risky and have greater access to capital markets, so the precautionary motive for cash holdings is weaker for them (Bates et al. 2009), thus indicating a negative relationship.

3. DATA DESCRIPTION

To investigate the hypothesis on the determinants of corporate cash holdings we use a sample of publicly traded firms from the SEE countries from 2005 to 2015, obtained from Datastream. The SEE includes the following countries: Bosnia and Herzegovina, Bulgaria, Montenegro, Croatia, Greece, Romania, Macedonia, Slovenia, Serbia and Turkey. These data include survivors and non-survivors that appeared on Datastream at any time in the sample period. When designing the sample, we excluded: *i)* financial firms (because their business involves inventories of marketable securities that are included in cash and because they are required to meet statutory capital requirements; *ii)* utilities (their cash holdings can be subject to regulatory supervision); *iii)* firms with negative sales and/or assets; *iv)* firms with missing observation for any variable. Finally, our sample encompass 877 firms and 9.647 firm-year observation.

3.1. Measure of liquid assets holdings

The cash measure in this paper is defined broadly as cash and short-term investments, taken as a consolidated measure of cash holdings. Following Bates et al. (2009) and Ozkan and Ozkan (2004), the primary dependent variable used in the analysis below is the cash ratio measured as cash and short-term investments divided by total assets. Other studies employ several alternative definitions of the cash ratio, including *(1)* cash to total assets, *(2)* cash to net assets (where net assets equal total assets minus cash and equivalents) (Opler et al., 1999; Ferreira and Vilela, 2004), *(3)* log of cash to net assets (Foley et al. 2007), and cash to sales (Bates et al., 2009). We focus mostly on cash to assets, the most traditional measure, but will reproduce the regression using (2) and (3). The cash to net assets ratio generates extreme outliers for firms with most of their assets in cash, as is the case here. Foley et al. (2007) tries to overcome this problem of extreme outliers by using Ln (Cash/Net Assets).

3.2. Exogenous variables

Expiatory variables of corporate cash holdings are in accordance to the explanations of the transaction and precautionary motive of cash holdings derived from the postulates of the trade-off, pecking order and free cash flow theory. We do not have enough data to introduce an explanation of agency problem motives. The variables used here are as follows:

1. Net working capital to assets. We measure this ratio as NWC minus cash and short term investments divided by total assets.
2. Leverage. We measure this ratio as total debt (long-term plus short-term) divided by total assets.
3. Firm size. We measure this as a natural logarithm of total assets in constant year 2015 using the consumer price index for the respective countries.
4. Cash flow ratio. We define this measure as earnings before tax plus depreciation over the total assets (Ozkan and Ozkan, 2004). Opler et al. (1999) and Bates et al. (2009) assess cash flow as earnings after interest, dividends and taxes plus depreciation. Our cash flow measure is not so sophisticated due to insufficient data of our sample.
5. Cash flow uncertainty. The measure we use for cash flow volatility is the standard deviation of the firm's cash flows divided by the total assets.
6. Cash conversion cycle. This measure is calculated as the account receivables collection period plus the inventories conversion period minus the account payables period.
7. Debt maturity. According to Ferreira and Vilela (2004), debt maturity is measured as total debt minus debt repayable in less than one year divided by total debt.
8. Capital expenditures ratio. It is measured as capital expenditures over the total assets.

4. EMPIRICAL RESULTS OF THE DETERMINANTS OF THE CORPORATE CASH HOLDINGS

4.1. Corporate cash holdings in SEE countries

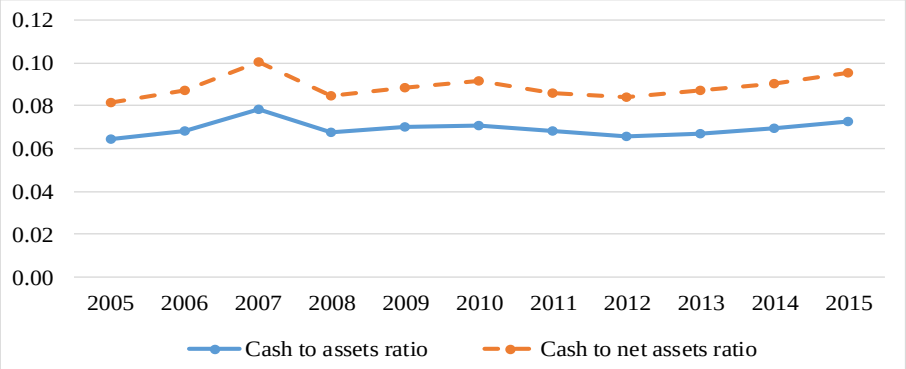
For the analyzed period of 2005-2015, the corporate cash holdings by countries are presented in Table 1. The overall mean in SEE cash to assets ratio is 6.9%, which is lower than the UK companies of 9.9% (Ozkan and Ozkan, 2004, p.2117), and 7.2 for the USA (Bates et al., 2009), and the cash to net assets in SEE is 8.9%, which is lower than the EMU countries of 14.8% (Ferreira and Vilela, 2004, p.303), and US companies of 17% (Opler, 1999, p.17). There are great differences among the countries, where the lowest cash ratio belongs to Bosnia and Herzegovina (4.2% and 5%) and the highest is Turkey (9.5% and 12.4).

Table 1: Cash ratio by country (Source: author's own calculation)

Country	Cash to assets			Cash to net assets			Nº of observations
	Mean	Median	St. dev	Mean	Median	St. dev	
Bosnia and Herzegovina	0,042	0,017	0,064	0,050	0,018	0,095	55
Bulgaria	0,052	0,020	0,082	0,066	0,021	0,133	139
Croatia	0,072	0,035	0,096	0,093	0,036	0,155	73
Greece	0,071	0,041	0,084	0,088	0,042	0,137	187
Macedonia	0,052	0,022	0,078	0,065	0,022	0,114	32
Montenegro	0,043	0,011	0,076	0,054	0,011	0,106	14
Romania	0,079	0,035	0,108	0,107	0,036	0,187	97
Serbia	0,053	0,020	0,078	0,065	0,021	0,109	59
Slovenia	0,051	0,028	0,066	0,060	0,029	0,094	27
Turkey	0,095	0,058	0,104	0,124	0,061	0,172	194
SEE	0,069	0,033	0,092	0,089	0,034	0,149	877

Figure 1 plots the average cash ratio in SEE countries, where we can see that they are very similar through the whole period with no large deviations, the standard deviation being 0.3%. The cash to assets ratio is converging around 7%, and the cash to net assets around 9%.

Figure 1: Average cash ratio in SEE, 2005-2015



In Table 2 we present the descriptive statistic of the exogenous variables. The NWC ratio of 2.6% is lower than EMU (3.5%), UK (4.8%) and USA (17.6%). Also, the firms in SEE have a lower cash flow to assets ratio. The leverage and other variables are similar to the other countries in EMU and USA.

Table 2: Description of exogenous variables

Exogenous variables	Mean	Median	Standard Deviation	Nº of observ.
Net working capital to assets	0,026	0,043	0,297	9647
Leverage	0,233	0,183	0,256	9647
Firm size	18,987	18,974	2,048	9647
Cash flow ratio	0,046	0,048	0,174	9647
Cash flow uncertainty	0,087	0,055	0,147	9647
Cash conversion cycle	251	77	14449	9647
Debt maturity	0,364	0,309	0,344	9647
Capital expenditures ratio	0,044	0,021	0,076	9647

4.2. Regression test

The determinants of the corporate cash holdings are investigated using a regression of cash holdings on the exogenous variables described above. Since the cash can be defined differently, three different regressions are performed, where only the dependent variable is changed. We shall focus in the discussion mostly on the results on the first one, where the cash ratio is defined as cash and short-term investments over the total assets. The analysis is done on a balanced panel of data. At the very least, using the Hausman test, we examined which regression model was most appropriate. The results showed that the fixed effects model is best for the given data sample. According to Deloof (2003), fixed effects estimation assumes firm specific intercepts, which capture the effects of those variables that are particular for each firm and that are constant over time. A disadvantage of fixed effects estimation is that it eliminates anything that is time-invariant from the model. The results are very similar in the three regressions. The firm size changes the sign in the third regression and the significance in the second regression, CCC becomes significant in the third one, and CAPEX becomes insignificant in the third one. Our findings are pretty consistent with the empirical studies on determinants of cash holdings of EMU firms (Ferreira and Vilela, 2004), but is not very consistent with the US firms (Bates, 2009 and Opler, 1999).

Table 3 presents the panel regressions results. We found that corporate cash holdings in the SEE countries decrease significantly with the net working capital, leverage, cash flow uncertainty, and capital expenditures. Cash holdings in SEE countries increase significantly with the firm size, cash flow and debt maturity. The cash holdings have a negative relation with CCC, but this is not a statistically significant variable. The negative relation between net working capital and cash holding is consistent with the trade-off model. The NWC are liquid assets that can be easily converted into cash when the firm is faced with the cash shortfall. This is due to the lower transaction cost of converting non-cash liquid assets rather than other assets, and consequently the firm may not have to use the capital markets to raise funds. The pecking order and the free cash flow theory predict a negative relationship between cash holdings and the firms leverage, which we detect here. The pecking order theory explain this in a way that when the firm's investments exceed the retained earning so their cash is exhausted, the firm must increase the debt. The free cash theory explains that high levered firm has lower cash levels, since the borrower imposes prevention from superior managerial discretion. The trade-off theory also has an explanation: = the cost of funds used to invest in liquidity increases as the ratio of debt financing increases, which would imply a reduction in cash holdings with increased debt in capital structure (Baskin 1987). The positive relationship between the firm's size and cash holdings in the SEE countries can be explained with the pecking order or financing hierarchy view, according to which firms that are larger presumably have been more successful, and hence should have more cash, after controlling for investment (Opler, 1999, Ferreira and Vilela, 2004). Alternatively, this positive relationship is explained by the free-cash flow model, where larger firms tend to have larger shareholder dispersion, giving to the managers of the large firms greater discretionary power over the firm investment and financial policies, leading to a greater amount of cash holdings. This later explanation we cannot prove since we don't have data for measuring shareholder dispersion and managerial discretion power. SEE companies' cash holdings show a positive relationship with the cash flow to assets ratio. This is explained by the financing hierarchy model according to which the firm that is not constrained in its investment policy simply uses cash flow to increase cash, unless it has debt to repay. A very logical presumption in the literature is that the firms with greater cash flow risk have an incentive to hold more cash for precautionary reasons. But, our finding is contrary to the traditional expectation and most of the previous empirical evidence. We found a negative relationship between the cash flow volatility and the firms cash holdings. This means that firms with higher cash flow volatility have less cash. This was also found by Opler (1999) in the case of USA when he uses fixed effect regression (Opler, 1999, p. 25) the same as we do, but not with the other four regressions. Additionally, this negative relation was found by Ferreira and Vilela (2004) in the case of EMU countries, who replicated the same regressions as Opler (1999). They explain this with the cost of capital. Since the greater volatility produces a high cost of capital, firms with a high cost of capital may try to avoid holding cash. In this situation the benefits of holding cash are lower than the cost, so firms with a high cost of capital will hold cash for precautionary reasons since it is very expensive.

Table following on the next page

Table 3: Regression of cash holdings on firm characteristics

Independent variable	*Dependent variable*		
	(1) Cash/Assets	(2) Cash / Net assets	(3) Log (Cash / Net assets)
Intercept	0.0106	0.0307	-0.7331
	(0.0402)	(0.0672)	(0.8277)
Net working capital	-0.0617*	-0.0975*	-0.3940*
	(0.0042)	(0.0071)	(0.0874)
Leverage	-0.0789*	-0.1196*	-1.0511*
	(0.0057)	(0.0095)	(0.1171)
Firms size	0.0041**	0.0048	-0.1331*
	(0.0021)	(0.0035)	(0.0433)
Cash flow	0.0351*	0.0502*	0.4896*
	(0.0043)	(0.0072)	(0.0888)
Cash flow uncertainty	-0.0257*	-0.0617*	-0.5035*
	(0.0076)	(0.0127)	(0.1566)
Cash conversion cycle	-0.0000	-0.0000	-0.0000*
	(0.0000)	(0,0000)	(0.0000)
Debt maturity	0.0074*	0.0094**	0.1589*
	(0.0028)	(0.0047)	(0.0574)
Capital expenditures	-0.0305*	-0.0698*	0.2181
	(0.0107)	(0.0179)	(0.2199)
R^2	0.6061	0.5799	0.5728
Adjusted R^2	0.5664	0.5375	0.5297
F-statistics	15.2508	13.6824	13.2896
Prob(F-statistic)	0.0000	0.0000	0.0000

*Note: Standard errors in parentheses. * means significant at 1%, ** significant at 5%*
The results were obtained by applying the fixed effect OLS model for estimation.
Method: Panel Least Squares.
Period 2005 - 2015.
Cross-sections included: 877.
Total Panel (Balanced) Observations: 9.647

The cash conversion cycle shows negative relations with the cash holdings, but the coefficient is not only statistically insignificant but in general, it is also economically insignificant, since it is inconsistent with the presumptions of the trade-off theory. Debt maturity is positively related with cash holdings for the SEE firms. Since the credit risk plays the most important risk for SEE banks, they are more reluctant to lend to firms with higher credit rating than to firms with greater credit risk. This is consistent with the pecking order theory that implies that firms that have done well have less debt and firms with the lowest credit risk have better access to borrowing and will hold less cash for precautionary reasons, which would cause debt maturity to be positively related to cash holdings. The coefficient on capital expenditures/total assets is negative and significant for the SEE countries. The other evidence is mixed. This negative relation that we found may reflect the fact that as firms in SEE countries pursue profitable investment opportunities, cash holdings are depleted, giving rise to a negative relation. Such a negative relationship is found by Foley et al. (2007), Bates (2009) when using cash/total assets ratio as a dependent variable as we do. This is consistent with the pecking order theory, which states that firms that invest more should have fewer internal resources, and would accumulate less cash.

5. CONCLUSION

Corporate cash holdings in the SEE countries are lower than the developed countries with developed capital markets. The overall mean in SEE cash to assets ratio is 6.9%, which is lower than UK companies of 9.9% and 7.2 for the USA and the cash to net assets in SEE is 8.9%, which is lower than the EMU countries of 14.8% and US companies of 17%. There are great differences among the countries, where Bosnia and Herzegovina has the lowest cash ratio (4.2% and 5%) and Turkey the highest (9.5% and 12.4). In this paper we analysed the determinants of corporate cash holdings for the firms in SEE countries for the period 2005-2015. We model the cash to assets ratio as a function of the firm's characteristics. We found that corporate cash holdings in the SEE countries decrease significantly with the net working capital, leverage, cash flow uncertainty, and capital expenditures. Cash holdings in SEE countries increase significantly with the firm size, cash flow and debt maturity. The cash holdings have a negative relation with CCC, but this is not a statistically significant variable. More of our findings are consistent with the pecking order theory, according to which the firms do not have a target optimal cash level, and cash is used as a buffer between retained earnings and investments of the firm. The negative relationship of the leverage, the positive relationships of the firm size, cash flow, debt maturity and capital expenditures with the cash holdings are consistent with the pecking order theory. The negative relationship and alternatively the negative relationship of the leverage with the cash holdings are consistent with the trade-off theory. Only the positive relationship of the real size can be considered consistent with the free cash flow theory.

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CORPORATE SOCIAL RESPONSIBILITY IN COMMERCIAL BANKING SECTOR IN CROATIA

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ABSTRACT

This paper deals with the topic of corporate social responsibility (CSR) and includes an analysis of the ethical, environmental, social and economic determinants stemming from this concept. In the focus of this paper is socially responsible business as a kind of social and business paradigm, which in its complexity permeates all aspects of business, its economic breadth and strategic contribution to brand building, reputation and consumer loyalty. Considering a constant gap between the shareholder and the stakeholder approach when applying socially responsible initiatives, this paper gives an insight into the business justification of CSR, and the reasons for applying this concept. The aim of the research was to examine the recognition and level of understanding the CSR concept in the commercial banks sector in Croatia, among bank employees and consumers. When analyzing consumers perception about CSR it is important to conclude are consumers willing to give priority to a bank that is socially responsible/more responsible than another bank, and has socially responsible business become one of the important factors that influence consumers choices. Bank employee's perception is also examined in order to explore their point of view about effects of CSR inside the banking sector. The results of this study indicate the need for greater engagement and inovolvement of the banks in domain of social responsibility that requires more visible and measurable results, greater inclusion with community and bigger efforts for better recognition of this concept in the consumer's perception.

Keywords: *Corporate Social Responsibility, Croatia, bank*

1. INTRODUCTION

Understanding the term of corporate social responsibility encompasses a wide range synergy of principles, ethics, moral values that companies implement in their business strategies with different motives and goals. In the last few decades, more companies are accepting CSR in their internal and external business practices, introduce new ideas, technologies and values that seek to make the world a better place respecting the postulates of sustainable development. There are many reasons why is so complex and complicated to agree on a one single definition of CSR is the fact that understanding CSR is determined by so many different cultural, political, historical, legal and social determinants of various countries and also different subject fields. (Remišova & Buciova 2012, p. 274). According to Bagić, Škrabalo & Narančić (2006, p.15) CSR in its widest sense refers to the influence of firm on society and its role in sustainable development. This is a large concept, so definition will always differ depending on individual contexts such as the country, economic sector, type and size of the company and its ownership structure, etc. The most important factor about CSR is taking responsibility for various activities beyond the sphere of purely commercial interest. We can say that CSR complies its function when economic benefits and benefits for society in the wider sense are met. Using the CSR concept, firms strive to strike a balance between its own drive for profit and responsibility towards society. (Bagić, Škrabalo & Narančić 2006 et. al., p. 15) Bahtijarević Šiber, Sikavica

& Pološki Vokić (2008, p. 568) claim that social responsibility is duty of management to valorize every important decision not only on the basis of an action that increases the well-being and profit of the firm or organization, but at the same time has to increase the welfare of society as well. Most authors get along about the fact that the real social responsibility of management is overcoming legal obligations and economic interests and act in the interest of society in the long term, which means that this has to be obligation of management and part of business strategy. (Bahtijarević Šiber, Sikavica & Pološki Vokić (2008 et. al. p. 569) Heal (2005, p. 388) says that "CSR is an important part of corporate strategy in sectors where inconsistencies arise between corporate profits and social goals, or discord can arise over fairness issues." He also concludes that CSR programme can make executives aware of these conflicts and commit them to take social interest more seriously.

2. REASONS FOR APPLYING CSR CONCEPT

Purnamasari, Hastuti & Chrismastuti (2015, p. 248) in their research made a statement:" If the company realizes that there is a close link between environmental performance and social perspective on financial and nonfinancial aspects it is expected that the company can change the mindset that the implementation CSR is not a burden but a form of investment." In the ultimate consequence of stakeholder approach, it must lead to changes in culture and in the way of thinking of individuals. The purpose of social and economic inclusion is not only to achieve social justice and security but also to point out the possibility that individuals acting together can influence the forces that shape society. As a general philosophy or concept, stakeholder approach is restored to the general, fundamental principles of liberty, communion, equality and solidarity. Its main characteristics and goals are achieving social and economic cohesion. The key value in the stakeholder approach is inclusion, which CSR strongly proclaims. (Kelly, Kelly & Gamble 1997 referenced by Darling 1997, p. 10) Civil society is considered as fundamental stakeholder with many interests in relation to business and these requirements are not the same as other special stakeholders. These requirements are mostly general nature, with regard to awareness, problems of environmental protection, social inequalities, unemployment, social exclusion, etc. Fulfilling these demands leads to sustainable economic growth, social prosperity and strengthening social cohesion. (Sisek & Strahonja 2012, p. 137) Ethics and social responsibility are concepts that are essential when business is concerned. The application of ethics excludes exclusive care for profit. Bringing ethics to the utmost care of the company can bring long term growth, develop and generate numerous benefits and even compensate initial costs of investing in ethical business. Through this concept it is possible to create a good image that ultimately results in better sales, increase business efficiency and gain precedence over competitors as well as increase trust in investor relations. Sankar & Bhattacharya (2001, p. 225) explain that in the face of marketplace polls that attest to the increasing influence of CSR on consumers purchase behavior. Findings in their work implicate both company specific factors, such as the CSR issues a company chooses to focus on and the quality of its products, and individual specific factors, such as consumers personal support for the CSR issues and their general beliefs about CSR, as key moderators of consumers responses to CSR. The results in their paper highlights the mediating role of consumers perceptions of congruence between their own characters and that of the company in their reactions to its CSR initiatives. More specifically, the authors find that CSR initiatives can, under certain conditions, decrease consumers intentions to buy a company's products. Darling, A. (1997) according to G. Kelly, D. Kelly & Gamble (1997) implicate that in numerous companies the ethical and socially responsible component means enrichment, adding new value and quality to their products, which puts customers as the primary interest-influencing group, since customers now pay more attention to corporate social responsibility along with the cost and quality of product. Khan, Halabi & Samy (2009, p. 346) explain that benefits of CSR can be examined from a corporate

viewpoint, CSR reporting is important to promote efficiency and stability of an economy. They emphasize that CSR reporting discloses the information of society and is essential in the formulation of national policies.

3. IMPLEMENTATION OF CSR IN BANKING SECTOR

Schlotens (2008, p.159) says that socially responsible banking is becoming a well established notion in the financial services industry. Financial institutions are coming round to the idea that there are numerous reasons to invest in CSR than just think about profit. Development of socially responsible banking operations contributes to trends and factors in the financial industry, such as increased competition, pressure to find new areas of growth, technological innovation and high exposure to risk. (Schlotens 2007, 273- 284). Financial institutions like banks need to be seen as leading organizations, as those who engage in social activities that uplift society, environment and economy. (Dorasamy 2013, p. 777) Looking back on the economic history and the emergence of banks based on borrowing money, we can notice different consecutions on society, from positive to negative, social and economic. The expansion of banking institutions is growing their influence in the market arena, but their influence on society also grows. Banks have a great power, generate a lot of money, their role in the world is big, and so is their responsibility towards society. That same society then begins to require greater and more inclusive involvement in order to justify their influence. Accordingly, banks are beginning to look for ways in which they can answer social expectations and generate maximum positive effects from possible costs, thereby developing socially responsible strategies. Although, in the short run, the economic goals of maximizing profits and socially responsible business can be seen as contradictory, but they are not opposed. Banks must be socially responsible in order to be able to build their reputational capital that allows them to attract high-quality employees, charge more funds, negotiate better jobs, expand client base, attract more investors, and win public confidence. (Achua 2008. p. 57-70) Dorasamy (2013, p.p. 783-784) concludes that banks in attempt to contribute to the common good of the local community, humankind and country, have to engage in CSR activities which can satisfy the needs of all stakeholders. This demands a focus on investment in CSR rather than on "increasing corporate wealth which is diminishing in importance against the landscape of organizational success." Nevertheless, banks can answer to social demands which can impact on organizational success and sustainable growth. (Remišova & Buciova 2012, p. 289) introduce stricter rules that companies should meet if they want to qualify as socially responsible. It is important to avoid a superficial perception of CSR. That can be done by defining standards for socially responsible behavior of organization so CSR activities can be comparable and measurable with clear meaning and importance. Polmering & Dolnicar (2006, p. 5) demonstrate that a considerable proportion of consumers will look favorably upon CSR initiatives once made aware of a firm's initiatives. The sensitivity differs across different forms of CSR activities and it doesn't appear that the low level of competition and high switching costs in the banking market lead to low sensitivity to CSR activities. Madrakhimova (2015, p. 29) in her work leads to suggestion that the advantages for banks in pursuing well devised CSR initiatives lie in the following activities: encouragement of sustainable behavior by partners and consumers; provide tangible and measureable benefits for society as a whole (environmental, economical and societal development); "building higher employee motivation and superior performance levels which can make banks more aware of their potential role in society and affords positive publicity and /or increased brand recognition." Hassan & Latiff (2009, p. 186) conclude that there is no contradiction between improving competitive context of business and making a truly sincere commitment to make better society. They also notice that if a company's societal work is linked to its competitive context, the greater the company's contribution towards society will be.

4. METHODOLOGY OF RESEARCH

The aim of the research is to examine the recognizability and degree of understanding of the concept of social responsibility among bank employees and clients. The major purpose of the research is to investigate do banks have impact on consumer behavior and how bank's employees experience CSR. This research consists two separate surveys, one questionnaire for bank's clients and another questionnaire for bank employees in Croatia.

4.1. Results of the first part of survey

First part of survey consists a questionnaire specially designed to research client's subjective opinions and beliefs towards CSR activities of banks in Croatia. 102 clients participated in this study. The respondents were answering to several types of questions; choosing only one solution or several solutions. The other type of questions consists rating questions with scale 1-4. Table 1. shows number, gender, age and level of education of bank's clients.

VARIABLES	FREQUENCY	PERCENTAGE
Gender		
male	77	75,5
female	25	24,5
Age		
18-29	67	65,7
30-39	12	11,8
40-49	10	9,8
50-59	12	11,8
60 >	1	1
Level of education		
high school	24	48
EQF (level 6, bachelor degree)	24	23,5
EQF (level 7, master's degree)	49	23,5
EQF (level 8, Ph.D)	5	4,9
Total of respondents	102	

Table 1.: Structure of respondants (bank's clients)

Following question (Figure 1.) examines respondents opinion about the bank's social responsibility, whether the banks are really socially responsible. There are three possible answers respondents can choose: "Yes", "No" and "I do not know". Asked are banks really socially responsible, 63.7% respondnets stated that they are not, 21.6% stated that they are, while 14.7% answered that they don't not know. It is noticeable that most respondents believe that banks are not really socially responsible.

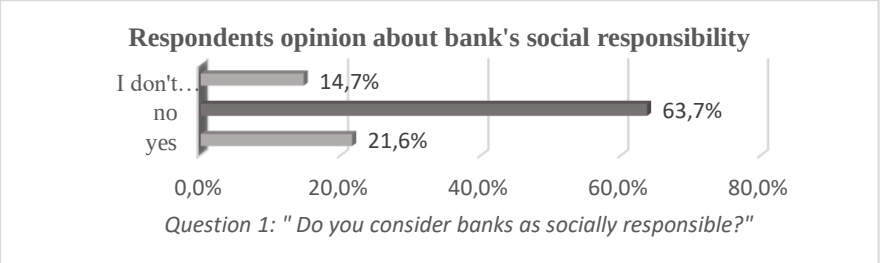

Figure 1: Respondents opinion about bank's social responsibility

Respondents were asked about importance of the social responsibility (Figure 2.) Opinion of respondents were examined through degrees of agreement with the statements through the scale with the following modalities: "It is very important to me", "It's important to me", "It is neither

important nor irrelevant to me" and "It does not matter to me at all". 44.1% of the respondents stated that the social responsibility of the bank is important to them, 32.4% said that is neither important nor irrelevant. For 23.5% of respondents, social responsibility of banks is very important, while there are no respondents who consider that social responsibility is not important at all. The conclusion of this question is that most respondents state that social responsibility is really important to them.

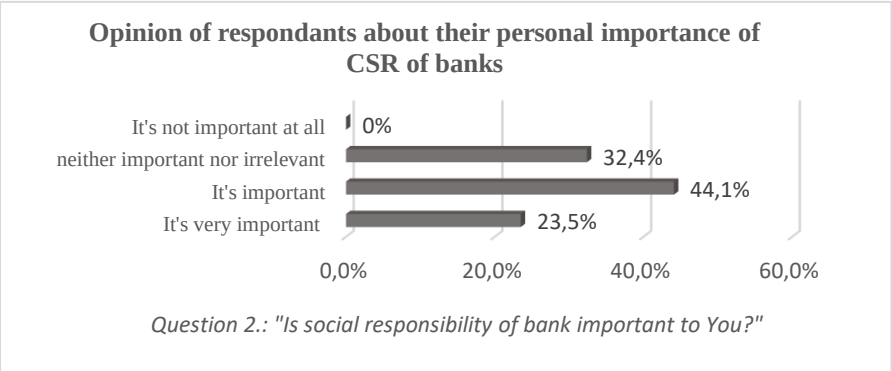

Figure 2.:Opinion of respondants about their personal importance of CSR of banks

Following question (Figure 3.) examines the respondents opinion about how often are they exposed to information about socially responsible activities. Options were; "Always", "Often", "Sometimes", "Rarely", and "Never". 48% of respondents stated that they were seldom exposed to information on socially responsible banking activities, 32.4% of respondents stated that they are rarely exposed, while 9.8% of respondents are often exposed. 8.8% of them have never been exposed to this information, and 1% of respondents are always exposed to information on bank's CSR activities. Most respondents are rarely exposed to information on bank's CSR activities.

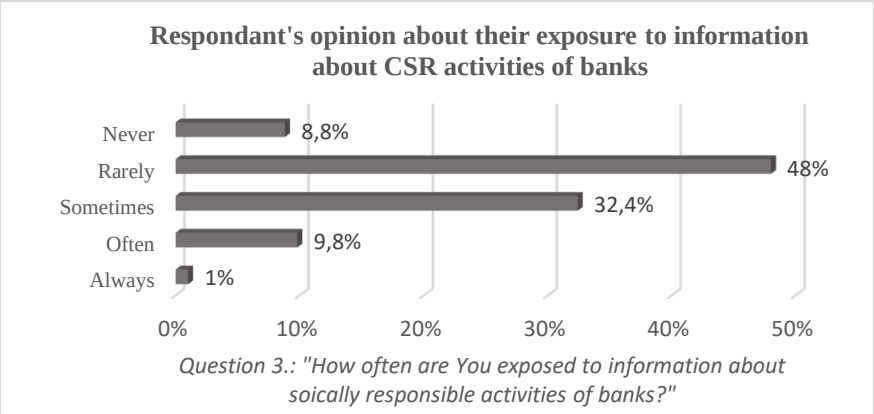

Figure 3.:Attitude of respondents about their exposure to information about CSR activities of banks

In this survery knowledge about the various models of bank's CSR activities was examined. (Figure 4.) The question offers more options for respondents 66.7% of respondents are familiar with sponsorship programs, 34.3% with green business, 33.3% with scholarship program, 22.5% with partnership programs with nonprofit organizations, 15.7% with donor programs, 13.7% with environmental care programs, and 9.8% with joint donation programs. The largest number of respondents are most familiar with sponsorships as a form of social responsibility of banks, while they know least about joint donation programs, 9.8% respondants.

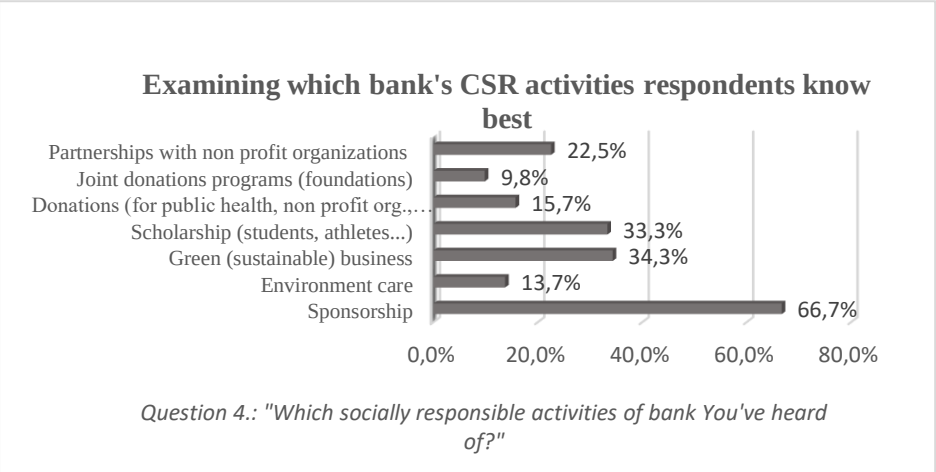

Figure 4.: Examining which CSR activities of bank respondent know best

The aim of following question (Figure 5.) is to find out for which bank's socially responsible activity respondents associate the notion of socially responsible bank. Question offers more variations of responses to respondents. 8.8% of respondents link the concept of socially responsible banks with environmental care. 27.5% of respondents link the notion of socially responsible banks with voluntary engagement and better community, 41.2% of respondents link the notion of socially responsible banks with responsibility to society, 21.6% of respondents link the notion of socially responsible banks with the concern for their employees, 16,7% link the notion of socially responsible banks with consumer affections and strengthening the corporate image, 10.8% of respondents link the concept of socially responsible banks to marketing activities and self-promotion, 22.5% of respondents link the notion of socially responsible business to the fundamental principles, mission and values and 41.2% of respondents link the notion of socially responsible business with satisfying consumer's needs. It is evident that most respondents have opted for two answers; meeting consumer's needs and responsibility towards society as activities that best describe the notion of a socially responsible bank.

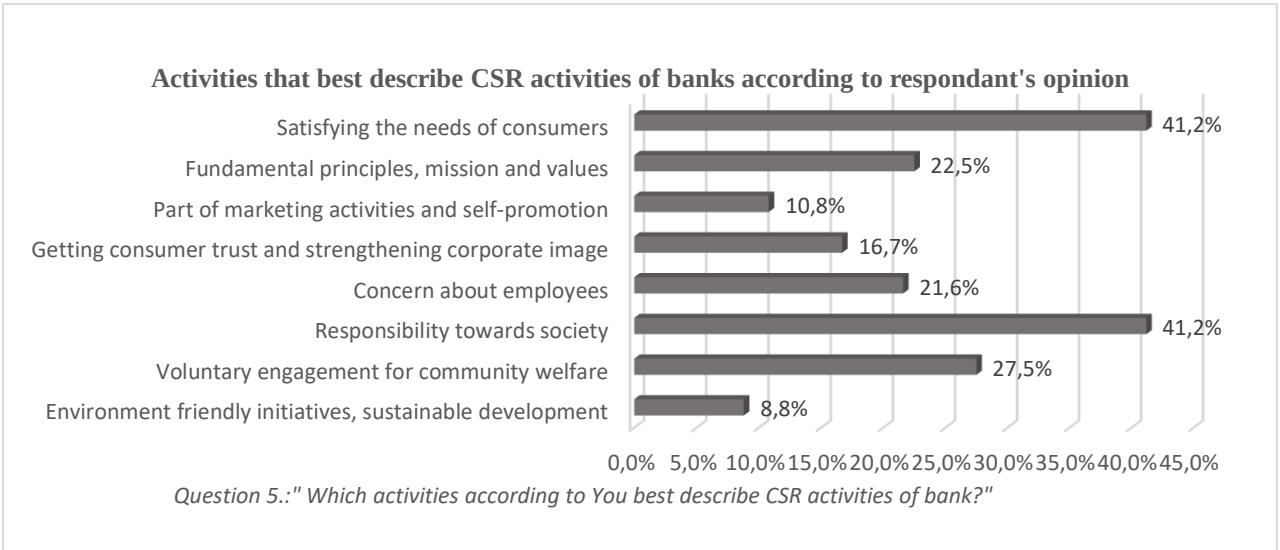

Figure 5.: Activities that best describe CSR activities of banks according to respondant's opinion

Following question (Figure 6.) examines whether bank's socially responsible activities can affect the bank's influence or change the respondents' views.

There were four responses avaliable :"Yes", "No", "Maybe" and "I don't know". 51% of respondents agreed that bank's CSR activities could influence or change their opinion about them, 16.7% stated that CSR activities of banks can't change or influence their opinion about them, while 6.9% do not know. The largest share in the structure have respondents who agree that socially responsible activities of banks may affect or change their opinion about them, 51%.

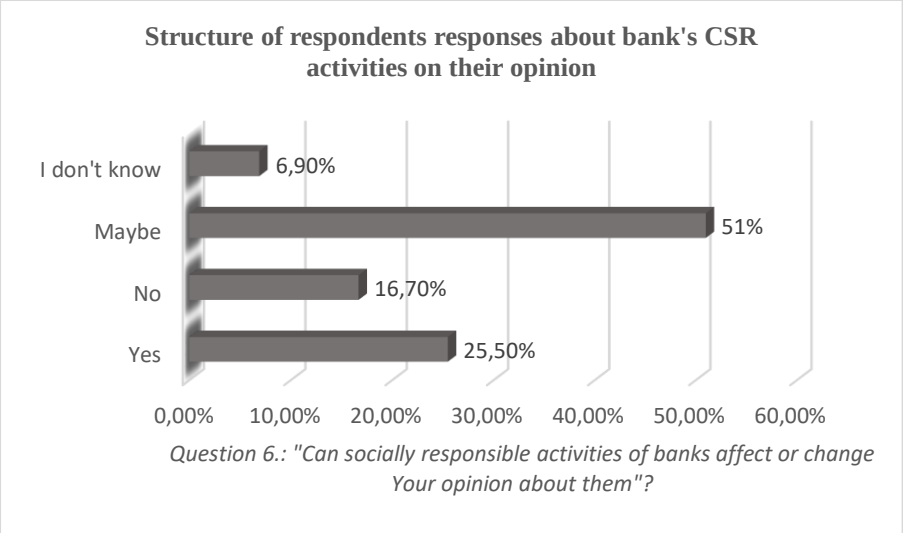

Figure 6: Structure of respondents about impact of bank's CSR activities on their opinion

The aim of following question (Figure 7.) is to investigate how much socially responsible activities of banks can influence clients to be motivated to behave socially responsible as well. Respondents choose an answer on a scale of claims / opinions ranging from total agreement to total disagreement with the statement. 32.4% partially agree with the statement, 32.4% have neutral opinion, 21.6% strongly agree, and 13.7% disagree with the statement.

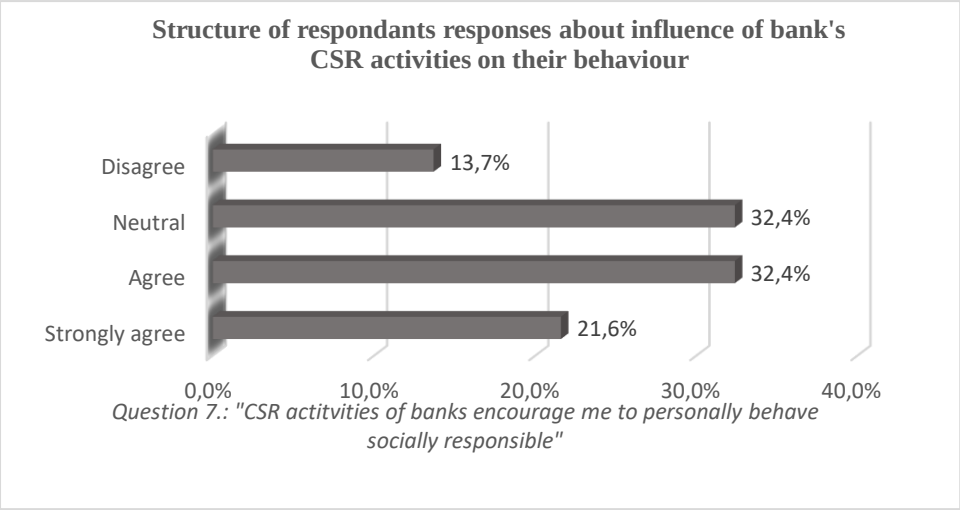

Figure 7.: Structure of respondants responses about influence of bank's CSR activities on their behavior

4.2. Results of the second part of survey

The survey questionnaire was specifically designed to gather relevant data and information about application of the CSR concept in sector of commercial banks in Croatia. The purpose of this questionnaire was to include knowledge, beliefs, opinions and attitudes of bank employees. 73 bank employees took part in this survey. Respondent's structure is shown in Table 2.

VARIABLES	FREQUENCY	PERCENTAGE
Age		
18-29	16	22,2%
30-39	22	30,6%
40-49	17	23,6%
50-59	14	19,4%
60 >	3	4,2%
Level of education		
high school	11	15,1%
EQF (level 6, bachelor degree)	21	28,8%
EQF (level 7, master's degree)	41	56,2%
EQF (level 8, Ph.D)	0	0,0%
Position in bank		
managerial position	10	13,7%
nonmanagerial position	63	86,3%
Total of respondents	73	

Table 2.:Structure of respondants (bank employees)

Following question (Figure 8.) examines opinion of respondents about the bank's social responsibility, whether they think the bank in which they work is really socially responsible. There are four possible answers: "Yes", "No"., "I don't know" and "I'm not sure". 78.1% of respondents consider bank they work for truly socially responsible, 12.3% respondents are not sure, 5.5% don't know, while 4.1% respondents do not consider the bank they work for socially responsible.

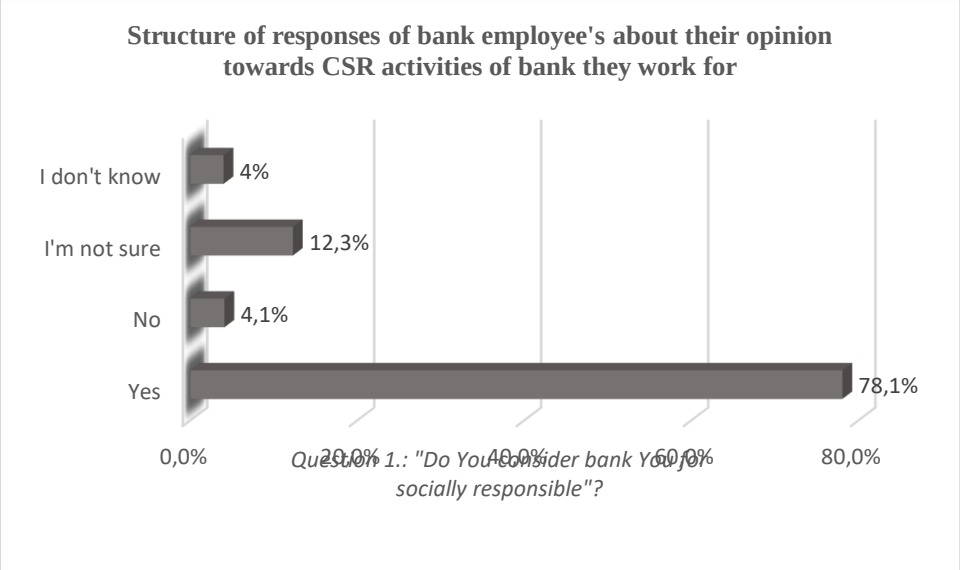

Figure 8.: Structure of responses of bank employee's about their opinion towards CSR activities of bank they work for

The aim of following question (Figure 9.) is to examine opinions of respondents whether the bank in which they work would be more competitive on the market if they applied more determinants of CSR. Respondents could respond with "Yes" and "No". 91.8% bank employees agreed that the bank would be more competitive if they applied more determinants of CSR concept, and 8.2% of employees said it would not. It can convincingly be concluded that most employees have opinion that bank is more competitive on the market if greater determinants of CSR was used.

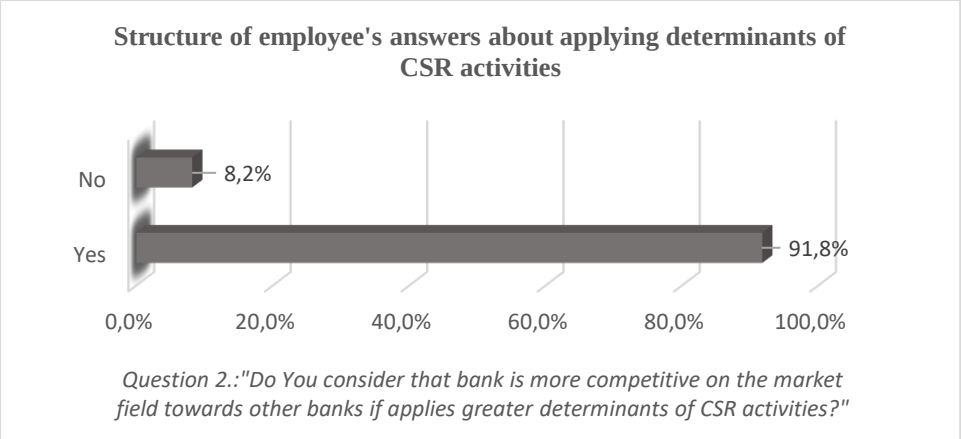

Figure 9.: Structure of employee's answers about applying determinants of CSR activities

In the following question (Figure 10.), using the scale of claims / opinions from complete agreement to full disagreement with the statement respondants were asked to share their opinion whether can bank attract more clients applying more CSR determinants. 45.2% respondents strongly agreed, 38.4% agreed, strongly disagreed 9.8%, while 6.8% stated "neutral" with the statement. Answer "disagree " was not chosen by any respondent. According to this results, we can conclude that most bank's employees strongly agree with the statement that bank can attract more clients if applies more CSR determinants.

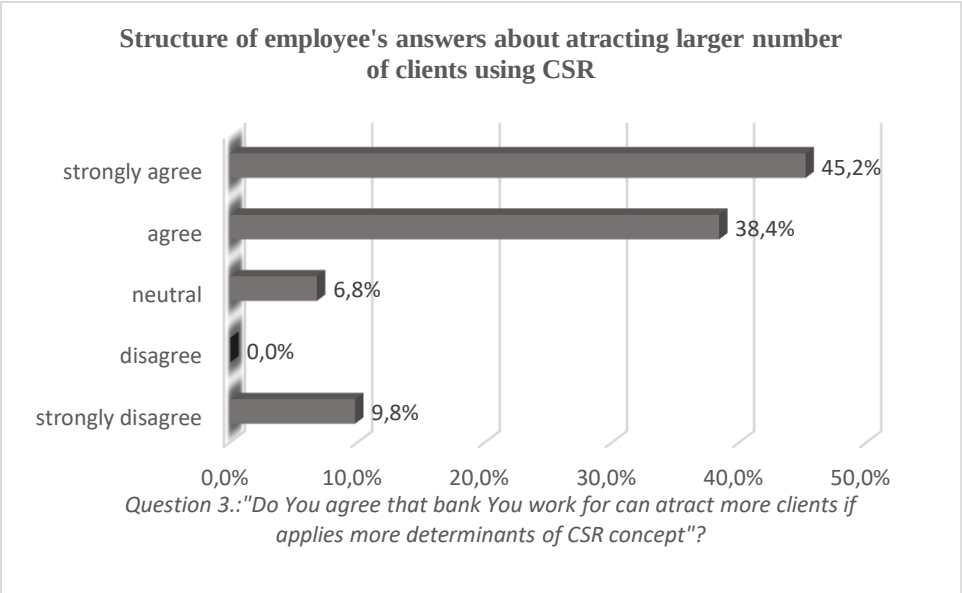

Figure 10.: Structure of employee's answers about attracting larger number of clients using CSR

In the following question (Figure 11.) a scale of claims / opinions from complete agreement to full disagreement with the statement is offered to respondents. The aim was to find out different aspects of respondent's opinions about effect of CSR on bank's business and financial performances. 60,3% bank employees think that bank's CSR activities can affect successful business and enlargement of financial performances, 23,3% bank's employees consider that can affect in very large extent, 16,4% think that can affect in small extent, while there are no respondents who think that it doesn't affect at all. It can be assumed that most respondents consider that bank's CSR activities in considerable extent have impact on successful business and financial performances.

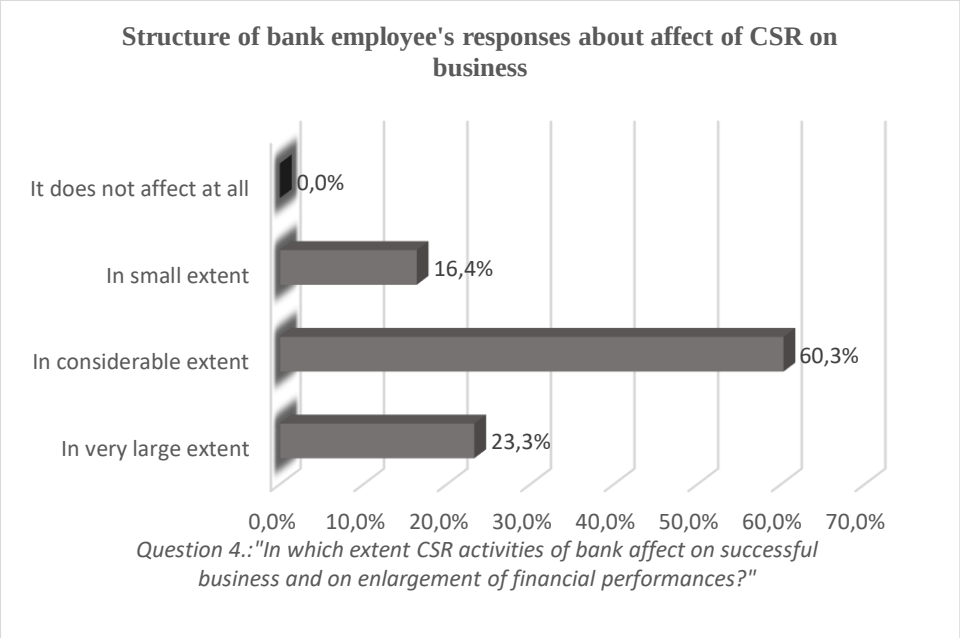

Figure 11.: Structure of bank employee's responses about affect of CSR on business and financial performances

5. CONCLUSION

The aim of this research is to point out the need for greater engagement of commercial banks in the area of social responsibility that requires more investment and work for public awareness in that domain. Banks have to take responsibility for the consequences they cause by its actions and anticipate in future challenges. According to most clients, bank's CSR activities are still considered as inconclusive and distrustful. There is significant percentage of respondents claiming that social responsibility of banks is important to them. That should encourage banks for greater engagement in that field so applying this concept with more effort can ultimately turn into a long-term business practice that has great potential to result in building more positive reputation in the public eye. Bank employees fully agreed with the statement that the bank in which they work can attract more clients if it is socially responsible. This data is indicative because it points bank employee's high degree of positive thinking about CSR and the knowledge of how CSR can affect or may be related to consumer behavior. In all business activities, especially in the banking sector, it is necessary to be proactive and innovative, to behave outside the framework and to be in line with social trends. Modern society demands new social paradigms in terms of social responsibility that banks should respond to in order to remain competitive, maintain their corporate image and enjoy consumer loyalty.

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CORPORATE INCOME TAX REVENUE DETERMINANTS: HOW IMPORTANT IS THE TAX RATE?

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ABSTRACT

Tax evasion and tax avoidance gains attention. States with globalized economies face erosion of the tax base. As a result sources for public goods may become less available in particular jurisdictions. To cope with the challenge international and national initiatives arise. They include several actions that could be gathered under the name of BEPS ("Base Erosion Profit Shifting"). Corporate Income Tax ("CIT") are among taxes particularly prone to profit shifting. To assure (even limited) budget inflows from that tax states seek to maintain attractiveness of their CIT systems. Commonly used tool is decrease of the statutory CIT rates. Such actions could lead, however, to infinite CIT rate competition between various jurisdictions. Eventually, an undesirable effect could be achieved consisting in minimal CIT budget revenues of each engaged state. In this article we identify key factors influencing receipts from CIT. The determinants are divided into two groups – i.e. (I) statutory CIT rate and (II) other factors that exert impact on revenues from CIT that are beyond CIT law. This latter group includes (i) GDP growth, (ii) size of the shadow economy, (iii) globalization index and (iv) top statutory personal income tax rate. The determinants are analyzed using panel regression of particular dependent variables for the years 1995 – 2014 for all EU Member States. Quantitative analysis leads to an important conclusion that the level of CIT rate exert lesser impact on CIT revenues than all other relevant determinants collectively. Moreover, impact of shadow economy on CIT revenues proved to be insignificant. This findings are interesting both from scientific and practical perspective as may influence attitude of states towards optimal CIT rate level.

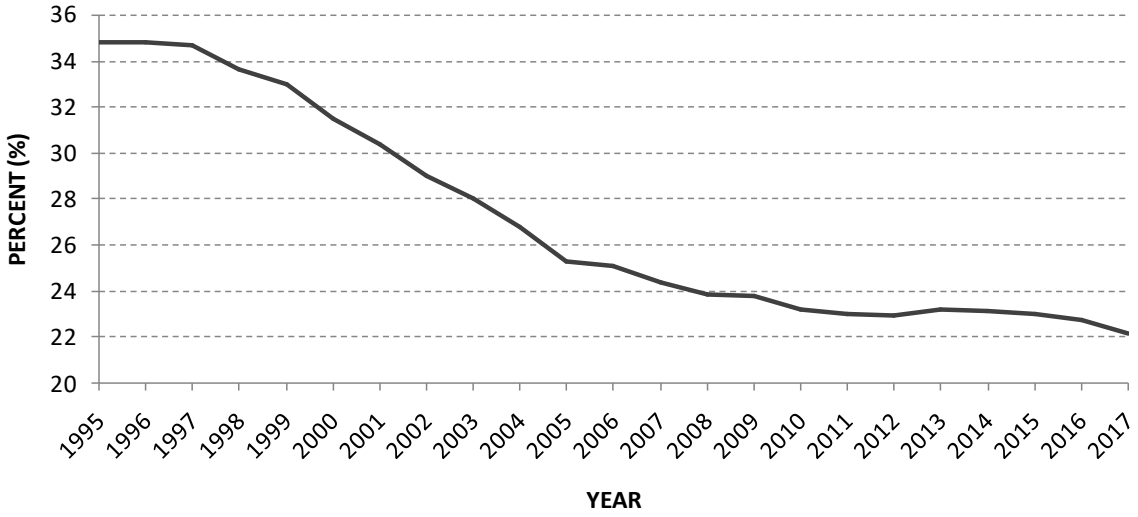
Keywords: *Corporate Income Tax, Fiscal Policy, Macroeconomic Policy, Tax*

1. INTRODUCTION

Statutory corporate income tax rates have been lowered (or at least remained unchanged) in all EU Member States over the last two decades with no exceptions. Corporate income tax ("CIT") is not harmonized on the EU level and each Member State runs fiscal policy in this respect independently (with some limitations that do not refer to statutory tax rate). The graph below shows development of top average statutory CIT rate in current EU-28 states (calculated as a sum of top statutory CIT rates in each Member State divided by number of Member States).

Figure following on the next page

Figure 1. Average top statutory CIT rates in EU28 Member States; Compiled based on Taxation Trends in the European Union 2017 (EU, Taxation Trends in the European Union, 2017) and Taxation Trends in the European Union 2013 (EU, Taxation Trends in the European Union, 2013)



In 1995 such artificial average top statutory CIT rate was 34.8 percent. In 2017 it decreased by 12.6 percentage points to 22.2 percent. This is the lowest level recorded in that analyzed period. Such "race to the bottom" rises anxiety among policymakers that CIT competition may eventually deprive local state budgets of revenues from that tax. To face that challenges targeted initiatives are taken. Under BEPS ("Base Erosion Profit Shifting") initiative Organisation for Economic Co-operation and Development suggested several solutions that should preserve the tax base in the country, where income in economic sense arises. Most proposals refer to CIT. Among them are mentioned Controlled foreign company ("CFC") regulations, thin capitalization restrictions, need for Double tax treaties renegotiation to limit their abuse and to close the loopholes, necessity for transfer pricing regulations update, catching income of companies rising revenues globally based on IT services, IP rights charges alterations, elimination of hybrid instruments, introduction of multinational tax agreements etc.. OECD is not a legislative body. Therefore, the reports produced by this organization may be used only as a hint for governments. European Commission is also aware of the so called "harmful tax competition". A solution is seen in harmonization of CIT among Member States. The first step would be establishment of equal tax base. Thus, Common Consolidated Corporate Tax Base for the Member States ("CCCTB") is proposed. CCCTB seems at present to be the final product of decades spent on discussions on CIT harmonization, which started in 1962 with Neumark Report. CCCTB assumes that the income of a company would be calculated on the EU-wide basis across all Member States. In other words a company acting on EU market could offset profits generated in one Member State against losses incurred in another Member State. However, income calculated in this way will not be directly allocated to particular Member States. The taxing right of total EU wide profit of a company would be assigned to different Member States using simple measures such as sales, labor and assets. These three factors would be equally weighted. CCCTB has not been introduced yet and discussions on its final shape are still on-going. Thus, both BEPS initiative supported by OECD as well as CCCTB proposal of EU Commission focus on CIT revenues and concurrently stress the economic origin of income rather than the legal sense. The aim is to tax income in jurisdiction where it arises taking into account factual business activity rather than to tax profits in jurisdiction where they are artificially transferred using tax avoidance tools.

Neither BEPS proposals in full scope nor CCCTB have been introduced in Member States yet. Therefore, there is no instrument available so far that could keep the states off from CIT rate competition. As a result the following research question arises: how important impact statutory CIT rates exercise on the level of budget revenues from that tax (and if any)? In this article we compare from this perspective (i) the significance of statutory CIT rates with (ii) other factors influencing receipts from CIT that are beyond CIT law.

2. LITERATURE REVIEW

The importance of statutory CIT tax rate from the perspective of its impact on budget revenues from that tax has not been reviewed so far in depth. Available research on CIT revenue determinants focused either on: (i) a single state, (ii) one factor influencing receipts from CIT or (iii) a group of countries, where one or more CIT revenue determinants were analyzed. Auerbach and Poterba were one of the first researchers who made a contribution in respect of CIT revenue determinants (Auerbach & Poterba, Why have corporate tax revenues declined?, 1987). They analyzed the data for one state only i.e. for US market. They found that the corporate profitability is the most important determinant of CIT receipts. Poterba in his research came to similar conclusions. He claimed that indeed the corporate profitability plays a crucial role in shaping government income from corporate taxation in the US (Poterba, 1991). The studies for the US market were repeated by Auerbach for the new time series data (Auerbach, Why Have Corporate Tax Revenues Declined? Another Look, 2006). He argued that legal restrictions in the offset of tax losses explain significantly rising CIT revenues. Douglas analyzed the reasons for declining importance of CIT receipts in Canadian budget in the period 1960 – 1985 (Douglas, 1990). He found that the falling profitability of companies was the most important reason for decline of CIT receipts. Devereux et al. focused also on one country data as well – i.e. United Kingdom (Devereux, Griffith, & Klemm, Why has the UK corporation tax raised so much revenue?, 2004). They claimed that among the most important determinants of CIT receipts, which supported the substantial revenues from that tax in the UK were (i) legal tax base broadening, (ii) increase in the size of corporate sector and (iii) high profits earned by financial institutions. Similar studies were performed by Becker and Fuest for Germany (Becker & Fuest, Internationalization and business tax revenue—evidence from Germany, 2010). They found that the degree of internationalization has a positive impact on CIT receipts. There was no research performed, where key objective of analysis would be the impact of statutory CIT rate on budget revenues from this tax. Gropp and Kostial focused rather on one particular CIT revenue determinant rather than on a single country (Gropp & Kostial, 2000). They used data for 19 OECD states for the period 1988 – 1997 and asked whether outflows and inflows of foreign direct investment ("FDI") exert an impact on CIT receipts. In the analysis they argued that indeed in (out) flows of FDI has a positive (negative) impact on CIT revenues. Slemrod focused on the relations between measures of openness of the economy and CIT rates as well as CIT revenues (Slemrod, Are corporate tax rates, or countries, converging?, 2004). In his estimation he employed data for several countries and analyzed them in five year periods from 1975 to 1995. More recently Riedl and Rocha-Akis worked on data for 17 OECD countries for the period 1982 – 2005 and sought to measure the relation between the CIT rates and CIT revenues (Riedl & Rocha-Akis, 2012). They found that CIT revenues of one state significantly depend on the CIT rates level both in-house and in the neighboring countries. Thus, this seems to be one of a few studies, which considered the impact of CIT rates on CIT receipts. Finally, there is a contribution to the literature of CIT revenue determinants, where both a group of countries and several factors, which influence the government receipts from that tax were analyzed. Research performed by Clausing covered different geographical regions i.e. OECD countries and years 1979 – 2002 (Clausing K. , 2007). For quantitative analysis as independent variables she used statutory CIT rate, corporate profitability and size of the corporate sector.

However, she did not take into account some CIT revenue determinants, which seem important (such as size of the shadow economy, breadth of legal the tax base, capital mobility or taxation level of individual income). Devereux focused on 20 OECD countries for the period 1965 – 2004 (Devereux, Developments in the taxation of corporate profit in the OECD since 1965: Rates, bases and revenues, 2007). He considered corporate taxation rates, profit shifting and depreciation allowances. The latest research encompassing several countries was performed by Kubatova and Rihova (Kubatova & Rihova, 2008). For their calculations they worked on OECD data for 1980 – 2006. As independent variables they used tax rate, profit potential, tax evasion, corporate sector size and cyclicality of the economy. However, it seems that the proxies for particular explanatory variables were not chosen with enough attention or the independent variables themselves in some cases could have been not accurate or sometimes they were missing. This is a general remark to most research in this topic made so far. It should be admitted that in several cases the lack of good proxies results from their unavailability. Summarizing, there is a research gap with respect to assessment of CIT revenue determinants in the EU. Firstly there was no research undertaken for this set of countries (i.e. for EU-28). Secondly, the available studies that were made for other regions often lack for comprehensive analysis of factors (including CIT rate), which should determine the government revenues from CIT. Thirdly, there is no available analysis for the new time series data. Therefore, especially in the view of general convergence of EU market, single monetary policy in Euro zone (but concurrently lack of common fiscal policy), high public deficits of Member States and advancing CIT competition, the research with respect to impact of statutory CIT rate on budget revenues from that tax raised by the Member States is fundamental.

3. VARIABLES AND SOURCES OF DATA

Variables were collected for all Member States for the period 1995-2014 (complete data is not available for more recent years). The objective of the research is to assess the impact of statutory CIT rate on budget revenues from that tax. Therefore, a dependent variable should include some measure of corporate tax revenues. Thus, the dependent variable in the estimation is:

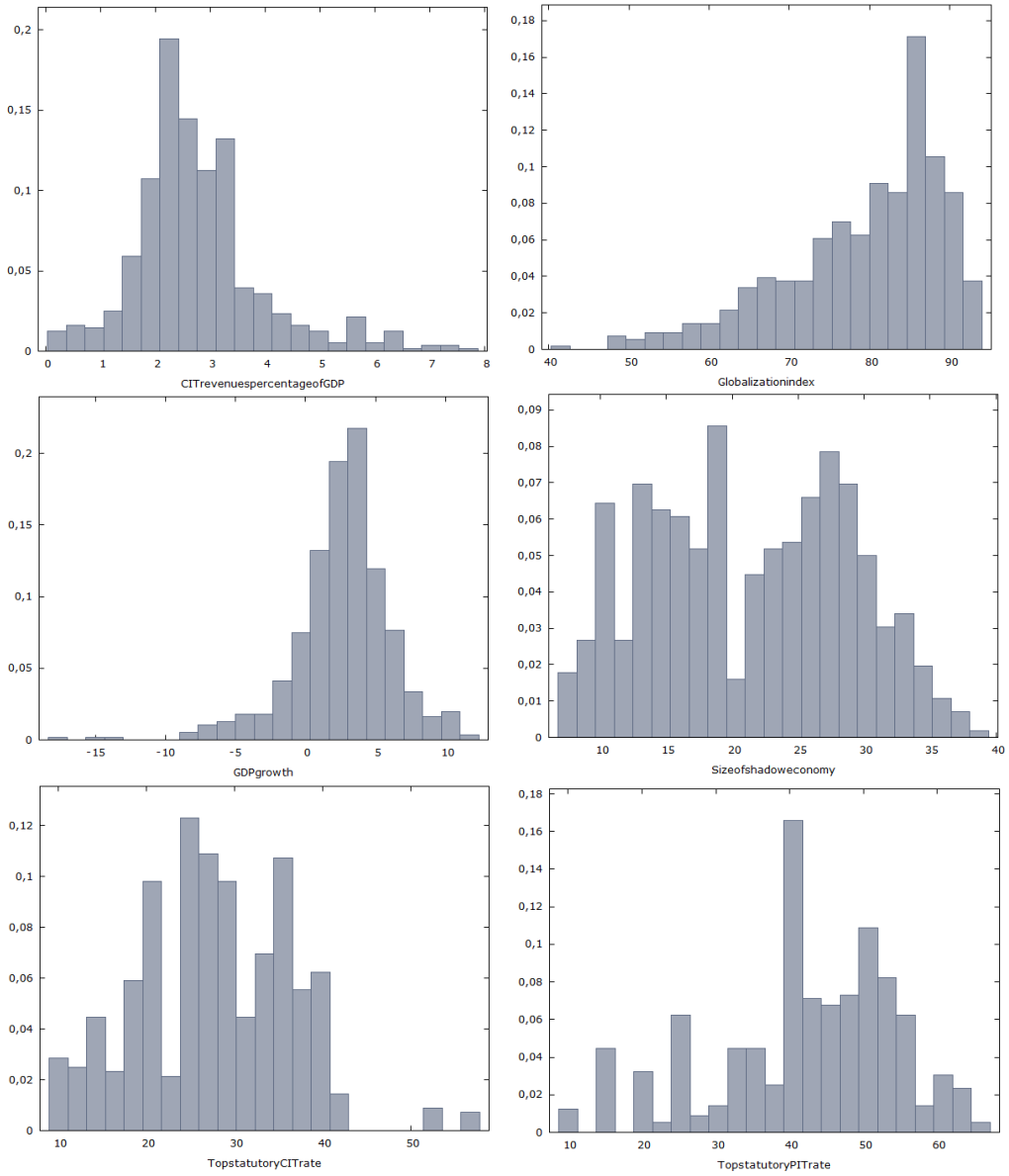
$$\mathrm{Y} = \frac{\text{Corporate Tax Revenue}}{\text{GDP}}$$

Such variable shows the importance of CIT revenues in particular Member States in consecutive years. Concurrently, the size of economies of EU countries is taken into consideration. This assures the comparability of the data between countries. The data provided by the Eurostat are used (according to the Eurostat classification code D51B; Label: Taxes on the income or profits of corporations). The figures available at Eurostat database are expressed as a share of GDP of respective countries. Therefore, no additional calculations are required. The figures are complete for all states and years for the whole analyzed period except for Croatia for years 1995-2001 where imputation was needed. The focus of these research is laid on statutory CIT rate in particular. Member States impose either single CIT rate (if linear taxation is selected) or foresee more than one CIT rate for different levels of income of taxpayers (progressive taxation). For our analysis we use either (i) top statutory CIT rate imposed by particular state in case progressive taxation is selected by that state or (ii) the only existing statutory CIT rate if the state maintains linear CIT taxation (without application of income brackets). Use of the top CIT rate seems more appropriate than some calculated average CIT rate. The reason is that statutory CIT rate as such is given by law and our objective is to measure the impact of the legally set rate on revenues from that tax rather than some artificially computed medium rate. Application of top CIT rates is also reasonable if the top personal income tax ("PIT") rates are to be applied to the estimation (discussed below).

The data were sourced from Taxation trends in the European Union 2011 edition (EU, Taxation trends in the European Union, 2011) and Taxation trends in the European Union 2017 edition (EU, Taxation Trends in the European Union, 2017) (both documents published by European Commission). Importance of statutory CIT rate is compared inter alia with statutory PIT rate. Most EU states maintain progressive labor tax rates. This means that particular PIT rates are foreseen for separate income brackets. In the model only one level of PIT rate may be used for a certain state for a period. Thus, the top PIT rates are chosen and applied. This is also connected with the fact that PIT serves as a CIT backstop, whereas those are primarily the top PIT rates, which are taken into account by most firms deciding on their legal form (and hence taxation – whether subject to PIT or CIT) and therefore those top PIT rates play a key role in erosion of PIT revenues. Moreover, as top CIT rates are also to be used, application of top PIT rates assures consistent approach in the considered calculations. The data for statutory PIT rates are collected from European Commission publications i.e. Taxation trends in the European Union 2011 edition (EU, Taxation trends in the European Union, 2011) and Taxation trends in the European Union 2017 edition (EU, Taxation Trends in the European Union, 2017). One of the determinants analyzed in this research is profitability of the companies. There is no aggregated data in this respect. However, profitability of the corporate sector positively correlates with GDP. Hence, if GDP per capita increases, so should also the profitability of the corporate sector. Such linkage is commonly used in the literature and is appropriate. The data for statutory GDP growth is taken from Eurostat for the years 1995-2013 (code PCH_PRE; Label: Percentage change on previous period) (almost no imputation was needed – only for some earlier years for some states) and from OECD for the year 2014 (as no complete data was available from Eurostat for this year). The next issue is the intensity of tax evasion and tax avoidance practices and the size of shadow economy. There are no official data on these matters. The scale of tax avoidance or tax evasion is unobservable. Difficulty in estimation of its scope stems from the fact that these practices are either illegal or at least partly illegal in some states and hence not recorded. Shadow economy is hidden and economic agents evading taxes have no interest to admit not paying them. Therefore, no exact figures can be provided also in this respect. There are estimated numbers made on yearly basis for the size of the shadow economy. The most complete figures are provided by Friedrich Schneider and Leandro Medina in "Shadow Economies around the World: New Results for 158 Countries over 1991-2015" (Schneider & Medina, 2017), which are used in this model for the years 1995-2014. Globalization, which is the following determinant of CIT revenues, cannot be directly measured. It is closely connected with increasing integration of world economy. Globalization index published by ETH Zurich seems a good proxy (Dreher, 2006). The data on Globalization index are available for all EU states for the whole period that we analyze, which is 1995 – 2014. On the below graph is presented frequency distribution of dependent and explanatory variables for particular states over the verified period of 1995-2014.

Figure following on the next page

Figure 2. Frequency distribution of variables



Based on the above it seems that variability of particular regressors to be used in the model is reasonable.

4. MODEL ESTIMATION

Taking into consideration the source data and their composition the most suitable estimation method seems panel data regression. Therefore, the following model is used:

$$Y_{it} = \alpha + \beta_1 \text{ CIT Rate}_{it} + \beta_2 \text{ GDP growth}_{it} + \beta_3 \text{ Shadow Economy}_{it} + \beta_4 \text{ Globalization}_{it} + \beta_5 \text{ PIT Rate}_{it} + \varepsilon_{it}$$

In the model Y_{it} is $\frac{\text{Corporate Tax Revenue}}{\text{GDP}}$, which we already discussed in the previous subsection. The indexes i and t denote data for particular Member States in certain years, respectively. α is the intercept. The explanatory variables were defined in the preceding chapter. Finally, ε is a random variable assigned to particular EU state.

To assure the figures from econometric point of view should be regarded as panel data we conducted some initial calculations. In the first step the model is estimated with pooled ordinary least squares method (polled OLS). Breusch-Pagan test $(p = 0)$ suggests that this is not appropriate model and model with individual-specific effects is more effective. From the Hausman test $(p > 0.05)$ results that random effects model is suitable. All independent variables except for shadow economy are statistically significant. After shadow economy is eliminated from regressors the estimation of random effects model is as follows:

Figure 3. Panel regression model with random effects
Random-effects (GLS), using 560 observations
Included 28 cross-sectional units
Time-series length = 20
Dependent variable: CITrevenuespercentageofGDP

	Coefficient	*Std. Error*	*z*	*p-value*	
const	−2.60560	0.641195	−4.064	<0.0001	***
GDPgrowth	0.0290487	0.00783157	3.709	0.0002	***
Globalizationindex	0.0425292	0.00599067	7.099	<0.0001	***
TopstatutoryCITrate	0.0440254	0.00606190	7.263	<0.0001	***
TopstatutoryPITrate	0.0168842	0.00495517	3.407	0.0007	***

Mean dependent var	2.774286	S.D. dependent var	1.188323
Sum squared resid	856.6622	S.E. of regression	1.241273
Log-likelihood	−913.6355	Akaike criterion	1837.271
Schwarz criterion	1858.911	Hannan-Quinn	1845.721

'Between' variance = 1.11774
'Within' variance = 0.354819
theta used for quasi-demeaning = 0.875003
Joint test on named regressors -
Asymptotic test statistic: Chi-square(4) = 129.184
with p-value = 5.81935e-027

Breusch-Pagan test -
Null hypothesis: Variance of the unit-specific error = 0
Asymptotic test statistic: Chi-square(1) = 2676.86
with p-value = 0

Hausman test -
Null hypothesis: GLS estimates are consistent
Asymptotic test statistic: Chi-square(4) = 7.5612
with p-value = 0.109041

By introduction of the estimated values in the model we get the following equation:

$$\widehat{Y}it = -2.6 + 0.044\ \text{CIT Rate}_{it} + 0.029\ \text{GDP growth}_{it} + 0.043\ \text{Globalization}_{it} + 0.017\ \text{PIT Rate}_{it}$$

Increase of the Top statutory CIT rate by 1 percentage point should entail the rise of receipts from CIT by 0.044 percentage point (assuming that other variables remain unchanged). The direction of influence of this regressor on receipts from CIT confirms the common sense (i.e. the higher the tax rate, the higher the revenues from that tax). GDP growth being a proxy of corporate profitability also positively impacts CIT revenues, which also meets expectations. The rise of GDP by 1 percentage point triggers increase of receipts from corporate taxation by 0.029 percentage point. Globalization index, that is the following variable included in the model, has a coefficient of 0.043. This is the second highest value among the analyzed determinants after CIT rate. The direction of impact meets the expectations as well. Top statutory PIT rate positively correlates with the CIT revenues. The increase of the top statutory PIT rate by 1 percentage point implies on average a surge in receipts from CIT in the level of 0.017 percentage point. This is because firms avoiding higher PIT prefer to pay lower CIT, which seems reasonable.

5. CONSLUSION

The conclusion from the research is that CIT revenues of EU Member States are determined both by (I) statutory CIT rate and (II) other factors that also exert impact on revenues from CIT but are beyond CIT laws. This latter group includes (i) GDP growth, (ii) globalization index and (iii) top statutory personal income tax rate. Impact of shadow economy on CIT revenues proved to be statistically insignificant. The level of CIT rate is the most important determinant of CIT receipts as its change impacts CIT revenues more than changes of any other factor that was analyzed by us. Concurrently, our calculations suggest that the level of CIT rate exercises lesser impact on CIT revenues than all other relevant determinants collectively. These findings are interesting not only from scientific but also from practical perspective. They may provide for a hint for policymakers how far CIT rate reduction destroys budget revenues from that tax and predict to some extend the impact of CIT rate competition.

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EMPLOYEE VALUE PROPOSITION AS A TOOL OF EMPLOYER BRANDING

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ABSTRACT

The modern socially responsible enterprise conducts economic activity focused on meeting needs of various groups of stakeholders comprising present and future employees. The information concerning the Employees Value Proposition (EVP) creates a distinguishable image of an organization as a preferred employer. The financial and non-financial information concerning employees influences greatly employer branding.

Purpose – The aim is to diagnose the kind of reporting the information regarding the Employee Value Proposition in terms of the creation of employer branding.
Methodology – The morphological analysis of websites of companies listed on the Warsaw Stock Exchange.

Results – The results of the conducted analysis show that the information presented on website could constitute an EVP for prospective employees. The main area presented on the websites is the possibilities of staff development which can be described as an EVP basis.

Practical implications –Thanks to the proposed methodology of EVP diagnosis based on the websites information, management staff may take action in order to increase the extent of reporting concerning employees with components creating employer branding.
Keywords: *Employer branding, Employee Value Proposition, financial and non-financial information*

1. INTRODUCTION

One of the internal development factors mentioned in activity reports of companies listed on the stock exchange is the need to attract and keep the best qualified key employees (Bagieńska, 2017a, p. 55). On the labor market, emigration and aging are factors which increase difficulties in recruiting workers with required skills. Enterprises are afraid of the risk of losing key employees or the lack of workers possessing required qualifications. Organizations aim at being perceived as a great place to work at and the most attractive employer (Bagieńska, 2016, p. 345). "The employer brand could be a key factor of competitiveness for a company in a contemporary labor market" (Kucherov, Zavyalova, 2012, p. 86). The employee value proposition (EVP) is a critical component of employer branding. EVP is defined as a collection of attributes perceived as value in the organization or outside. These are the reasons for which persons decide to take a new job or remain with their present employer (Ober, 2016, p. 350). The EVP should reflect the organizational concurrence and the values which company provides (Backhaus, Tikoo, 2004). An effectively designed and realised EVP could attract new employees, thus increase their interest in the employer (Maxwell, Knox, 2009, Robertson, Khatibi, 2012). Employer branding is a process focused on building the image of an employer whose aim is, inter alia, to hire and keep employees with given skills, experience and knowledge coming to the expectations of the company.

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Up to now, the research studies on employer branding have concentrated mostly on tools and instruments of human capital management, which build a positive image of an employer among the present and prospective employees (Backhous, Tikoo, 2004, Figurska , Matuska, 2013). While planning an EVP, it is necessary to determine not only which values the enterprise will offer prospective employees, but also the choice of adequate ways of informing on an EVP. Addressing job offers to younger persons, one should remember that the Y generation has slightly different expectations concerning the employer than the earlier generations (Kozłowski, 2012). Modern communication means enable transmitting the information regarding the enterprise on the Internet, inter alia, on the enterprise website. It is increasingly common to include a special bookmark for prospective employees (website). The aim is to diagnose the kind of reporting the information regarding the Employee Value Proposition in terms of the creation of employer branding on the websites of companies listed on the Warsaw Stock Exchange.

2. EMPLOYEES VALUE PROPOSITION – A CRITICAL COMPONENT OF AN EMPLOYER BRANDING PROCESS

The first definition of an employer brand was given by Ambler and Barrow (1996, p.186). They defined the employer brand as "the package of functional, economic and psychological benefits provided by employment and identified within the employing company". The Chartered Institute of Personnel and Development CIPD (2017) defines the employer brand as "the way in which organizations differentiate themselves in the labor market, enabling them to recruit, retain and engage the right people". The main aim of employer branding is to build a coherent and positive image of a company as an ideal employer in the opinion of employees, key candidates on the labor market, business partners, clients and shareholders (Ober, 2016, p. 349). E*mployer branding* is a strategy of creating desired associations evoked by a given company as a work place in prospective employees' minds. According to Mayo, *employer branding* can be defined as "all that is communicated (consciously or unconsciously) to every present or future employee" (Mayo, 2001, p. 123). Employer branding is a process combining activities related to human resources management with a general development strategy. Employer branding can be conceived as "a specific form of managing corporate identities by creating, both within and outside the firm, an image of the organization as a distinct and desirable employer" (Xie, Bagozzi, Meland, 2015, p. 124) Meier (2006) stresses that employer branding supports a company's effort to attract and retain its right potentials, meaning to find the employees who fit to the company's goals and values. A strong employer brand helps businesses compete for the best talent and establish credibility. It should connect with an organization's values and must run consistently through its approach to people management (CIPD, 2017). Employer branding can be a framework for aligning all relevant internal corporate function such as recruiting, selection, retention and development. The best way for a company to do successful employer branding is to show its employees that they are really the most valuable asset (Meier, 2006, p. 56). The employer brand is "a set of tangible and intangible benefits offered by the organization to attract potential employees and retain existing employees" (Tanwar, Prasad, 2017, p. 389). Potential employees are the ones who intend to apply for a job. The employer branding process can be divided into the following five stages shown in Figure 1.

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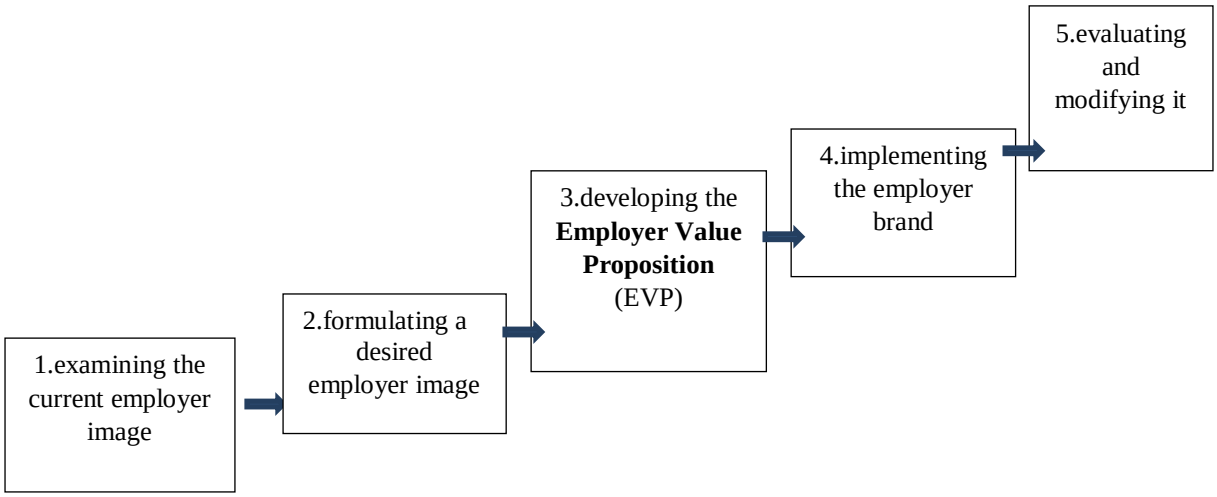


Figure 1: The stages of employer branding process (Backhaus, Tikoo, 2004; Hieronimus et al., 2005; Fin24, 2007; Konig, 2008; CIPD, 2017; Robertson , Khatibi 2012).

In each of the models from which the employer branding process was derived, the EVP is a critical component. It can be described as "a clear picture of what your organization stands for, offers and requires as an employer" (CIPD, 2017) and should encompass information obtained about the organization's culture, management style, qualities of employees, employment image and impressions of product and service quality (Sullivan, 2004). The organization create value for their prospective and current employees by investing in their "long-term availability and viability (e.g. maintaining employee health and safety, supporting their work-life balance, managing aging workforces, developing their work-related skills, and promoting a culture of lifelong learning), which should ensure a high-quality workforce for the future". (App, Büttgen, 2016, p.703). An enterprise should emphasize its "attractiveness" in order to be an employer of choice. Becoming an employer of choice is a strategy that can help organizations manage current and prospective employee expectations of their employment relationship (Berthon 2005, referenced by Bellou, Rigopoulou, Kehagias, 2015, p. 614). Heilmann stresses that the main motives for employer branding are better employer image, more efficient recruitment and improved job satisfaction. Employer branding efforts are focused according to the target group. Recruitment and educational co-operation are very often the main objects of employer branding towards potential employees, whereas training and development are an essential part of employer branding towards current employees (Heilmann, Saarenketo, Liikkanen, 2013, p. 283). The components of the EVP can be grouped into five categories: rewards, opportunity, organization, work, and people (Ryan, 2010). The remuneration (rewards) area includes remuneration systems and non-wage benefits, average salaries per employee, average salary at the lowest level of employment, salary at the lowest level of employment in relation to the minimal wages, retirement allowances. The opportunity for development area includes kinds of staff trainings, the number of hours of training, the ratio of trained employees, the number of hours of training per employee, training programs for students and graduates, projects enabling employees' development. The organization area comprises information about product or service quality, market position, number of newly employed persons, activities concerning the social responsibility of an enterprise, declaration stating that the company is a reliable and credible employer. The work area includes the kind of employment contracts, declarations regarding ensuring safety and equal chances to all employees, work-life balance activities, information on the possibilities of vertical and horizontal promotion, employee rotation index. In the people area, there are: manager quality, co-worker quality, communication and relations with co-workers, code of ethics, sharing knowledge and mentoring. (Bagieńska, 2017b).

Employee Value Proposition can be divided into rational benefits (e.g. stability of employment, benefits, development opportunity, ensuring work-life balance) and emotional benefits (e.g. job satisfaction, positive atmosphere in a company, values, relations among persons, prestige, CSR). Creating an EVP should be adjusted to the enterprise strategy as well as to the expectations of prospective workers to whom it is addressed. The present generation entering the job market is much better educated in comparison with the previous generations of employees. The knowledge of foreign languages opens the opportunities for an international career. For this group, the level of remuneration is as important as other elements, while pension insurance or life insurance are an addition which is not very strong motivating factor. Many of them are aware of a wide range of financial instruments on the market and they do not need the employer's help in managing their own financial means. A characteristic feature of this generation is aiming at personal development and that is what they mostly expect from the employer (Kozłowski, 2012, pp. 26-27)

3. RESEARCH METHOD

The first part of the research study presents the characteristics of a desired employer elaborated on the basis of research conducted in a group of 3303 specialists in Poland. This knowledge is a prerequisite to proper preparing an EVP for prospective employees. Then, one will characterize the ways of building employer's image by means of communication with the environment which are either used or planned for implementation by Polish enterprises. Since the size and prestige of the company are listed as the main features of a desired employer in the further part of the present research study, the analysis will comprise the information from the websites of big companies listed on the Warsaw Stock Exchange (WSE) so as to diagnose the kind of reporting the information regarding the Employee Value Proposition in terms of the creation of employer branding. By means of a random selection, 20% companies were chosen from the index: WIG-banki (Banks), WIG-budownictwo (Construction), WIG- informatyka (IT), WIG-paliwa (Oil & Gas), WIG-Chemia (Chemicals), WIG-energia (Energy) and WIG-spożywczy (Food & Drinks). Two companies did not have the "career" bookmark and because of this, the study was conducted in a group of 24 enterprises. The research is based on the method of the analysis of the contents of websites of the researched companies and on the method of morphological analysis and descriptive analysis. The method of contents analysis is a research method used in social sciences, consisting in analyzing the information contained in documents, drawing conclusions on the basis of objective, systematic and quantitative description of publicly available information, especially on identifying, coding and selecting information including given criteria of data classification (Wieczorek-Kosmala, Błach, 2012). In order to analyze contents, it is necessary to prepare the coding structure, which assumes common meaning of different words, focused on identifying the information regarding employee value proposition in the organization. The first level of the contents analysis consists in determining the presence or the lack of given information in the company report. In order to ensure the clarity of the presentation of the research results, the morphological method was used.

4. RESEARCH RESULTS

In order to elaborate an EVP adequate for the aims of a given company, as emphasized in Figure 1, it is necessary to analyze the present image of the employer and the characteristics of a desired employer. The enterprise can do it, *inter alia*, by means of a survey conducted among its employees. The research study of 3303 specialists and managers was conducted by the company Antal in Poland in the period from 14.11.2016 to 26.01.2017. Its results indicate the main characteristics of a desired employer (Fig. 2).

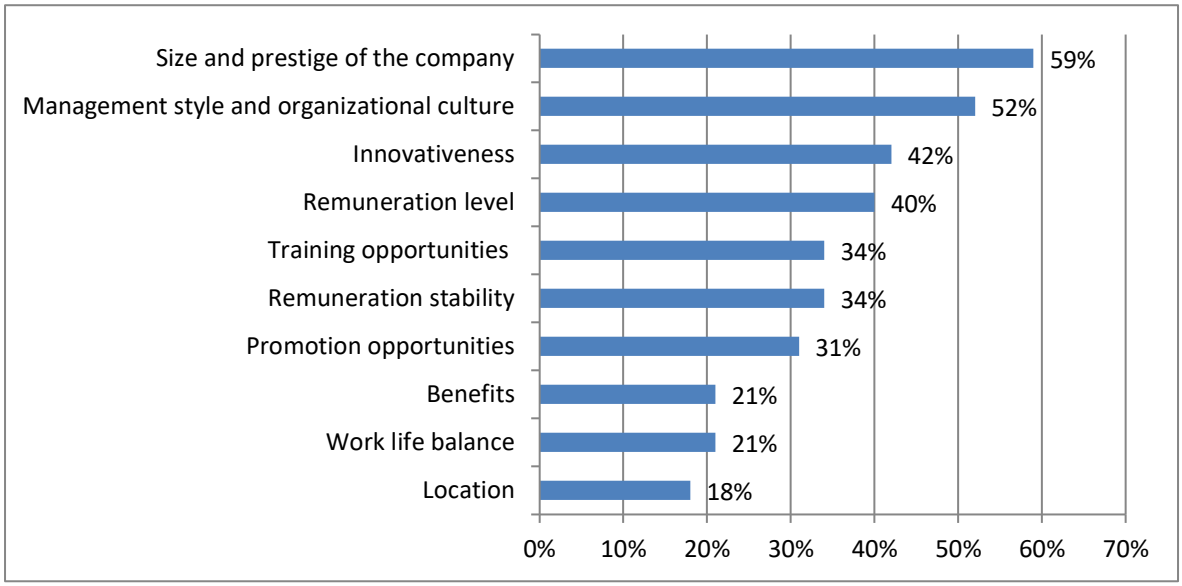
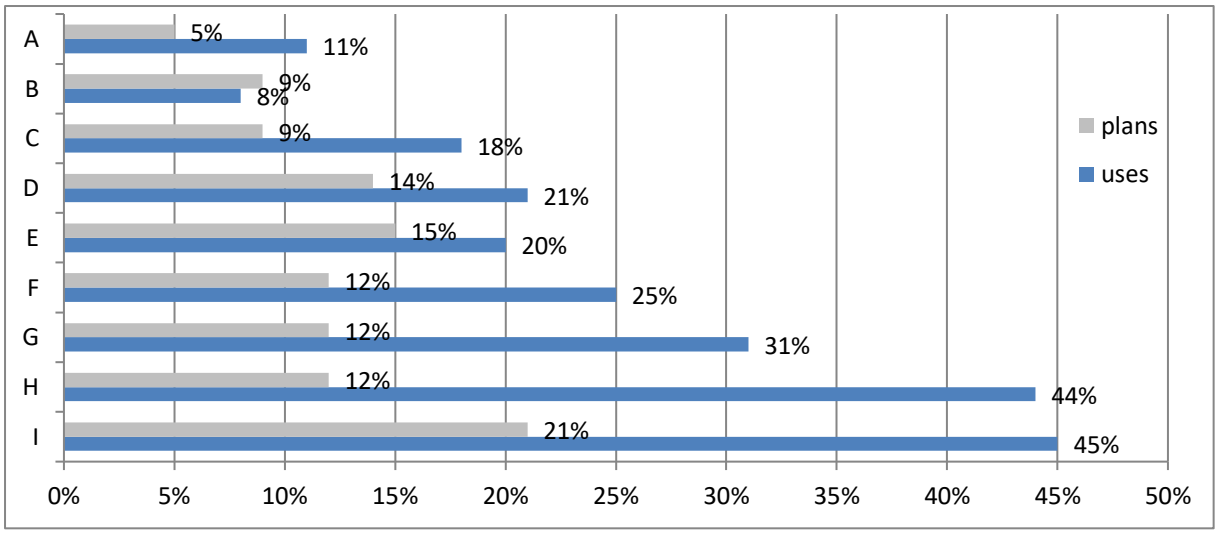


Figure 2: Most desired employers according to specialists and managers (in %);(www.1).

The research results confirm that the remuneration level is not the most important aspect in the employer's evaluation. The most desired employers are big enterprises, characterized by prestige and recognition (59%). Management style and organizational culture are also very important for perceiving the enterprise as a desired employer. For 42% respondents, innovativeness of a company decides about it being considered as a desired employer. Approximately 30% responses concerned the stability of employment and opportunities of training and promotion. The knowledge of the features of a desired employer facilitates formulating internal activities which create an EVP. The research studies conducted by the Institute of Market Research and pracuj.pl in a group of 510 persons employed in the HR departments indicate that an appropriate design and contents of the "career" bookmark in the Internet website of the company is the most frequently mentioned tool of both environment-oriented communicating and building the employer's image (Fig 3). The "career" bookmark is used by 45% respondents, and 21% are planning to implement it. Far fewer employers use the company profile in recruitment websites (21% using it and 14% planning to do so) and the social media profile (respectively 20% and 15%) to build the employer's image outside the organization. The tools of internal communication are used by 44% respondents in order to build and reinforce their image in the employees. The companies use for example the company intranet or a newsletter.

Figure following on the next page



A -educational programs; B- promotion in publications promoting employers – a video about a company prepared for persons seeking a job; C -participating in rankings evaluating firms as employers ('Top Employers')
D -company profiles on recruitment websites (pracuj.pl and others); E -company profile on social media (e.g. Facebook, Profeo, GoldenLine); F - on-going on-line contact with candidates (e.g. answering their questions and clarifying their doubts); G- taking part in the recruitment fair/on-line recruitment fair or other similar events targeted at persons looking for a job; H- internal communication tools, e.g. company intranet, newsletter
I- appropriate design and contents of the "career" bookmark of a company.
Figure 3: Used and planned ways of building the employer's image (in %), (www2; N= all respondents, multiple choice question)

Preparing sufficient amount and kind of information concerning the company requires an adequate strategy. It is especially important to develop the proposed EVP and to present the elements of EVP to the prospective candidate for a job because the research study conducted in a group of young persons show that valuable candidates do not apply to "any employer". It is highly probable that they will not apply for a job to the employer that (www.3):

- presents too little information about the company,
- does not present detailed requirements regarding the candidates,
- does not specify who "is being searched for".

The analysis of the employers' websites allows for determining whether the information included on the company website indicate prospective employees the scope of EVP in the following categories: *work, opportunity, rewards, people, organization.* The research results show that in the "career" bookmark, the candidate can find such information from the categories as:

- work – declarations regarding ensuring safety, work-life balance activities, flexible employment,
- opportunity for development – training programs for students and graduates, projects enabling employees' development, long-term involvement in development, kinds of trainings for employees, individual trainings schedule, opportunities of development in foreign branches of the company,
- - remuneration (rewards) – declaration to offer attractive working conditions, non-wage benefits, e.g. private health care, preferential prices of company products, life insurance,
- people – communication and relations with co-workers, team work, number of company employees, knowledge sharing,

- organization – social responsibility of an enterprise, declaration stating that the company is a reliable and credible employer, information about revenues, information concerning the scope of conducted activity.

Most information regarding the EVP is given in recruitment advertisements. Companies compete with one another in using frequently repeated descriptive phrases: "unlimited development opportunities", "dynamically developing firm", "friendly work atmosphere". Evaluating the form of communication with prospective employers via the website, one can notice that only part of enetrprises try to present the offered EVP by including the interviews with employees and photographs of undertaken development activities. It is very interesting that 95% analyzed enterprises present current job offers, but only 68% specify the requirements set for candidates. 57% companies offer a brief description of the recruitment process. IT enterprises invite to submit a CV despite of the lack of a job offer suitable for the candidate on their websites. Enterprises which are not searching for employees also present the information regarding the company and the benefits resulting from taking up a job in this enterprise. Building and presenting the employer's image is a continuous process. The "career" bookmark requires updating not only the moment the job offer appears, but all the time. For instance, if a student searching for an internship or a traineeship reads the information about the company and terms of employment, the person will acquire knowledge about the company EVP and may apply to this firm in the future. Most enterprises provide the information concerning the opportunity for development (30% indications of all EVP elements), 24% give the information from the work category, 18% offer the information on the organization, 17% include the information from the people category, while only 10% refer to the renumeration category. The results of the present research study indicate that in building the company image, the EVP is focused mainly on supporting the employees' development. Figure 4 shows the results regarding the EVP according to evaluated categories and companies.

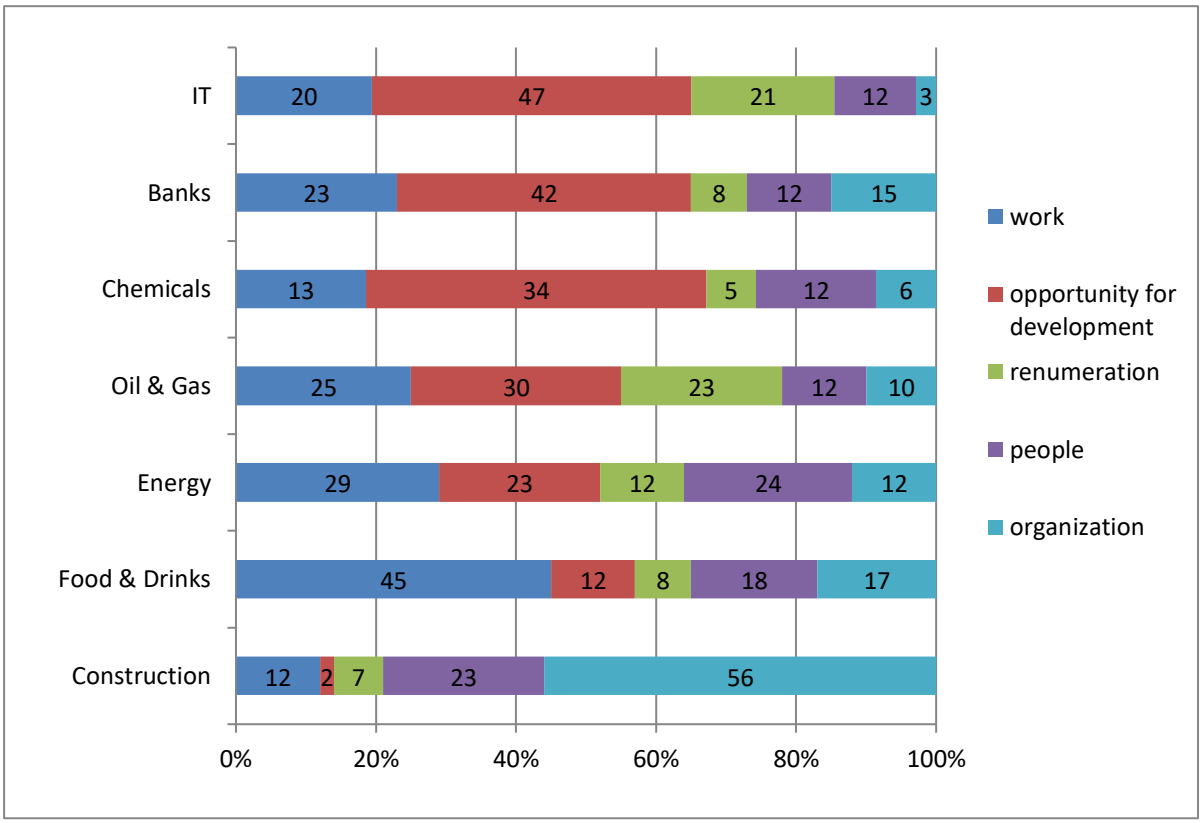


Figure 4: EVP according to categories in the analyzed companies (in %, own research).

IT companies, banks, chemical, fuel enterprises report mainly on the opportunities for development, offered contracts of employment, possibilities of flexible employment and work-life balance activities. Opportunity for development is the most important part of EVP in the IT companies which seek to employ specialists, best students and interns. Banks also place the employees development on the forefront, at the same time stressing firmly the stability of employment and work-life balance activities. In the fuel sector, the respondents consider as equally important the activities in the categories: work, opportunity for development and remuneration. In the food sector, the EVP is constituted by working conditions, stability of employment, information on social responsibility of an enterprise. As for construction, the EVP is mainly the declaration stating that the company is a reliable and credible employer, the information on the scope of the conducted activity and team work.

5. CONCLUSION

EVP is becoming a factor determining the choice of an employer, mostly in the case of highly skilled employees. Prospective employees also seek for employers with a stable financial situation, offering good working conditions and development opportunities. The survey results obtained in the HR employees confirm that remuneration is not the only factor deciding about the choice of the employer, since the decision is also influenced by the stability and size of the enterprise. Establishing the enterprise position on the market requires a longer period of time, yet, in elaborating an EVP one can use other attributes which are also very important for employees. Presenting the EVP on the websites is a very beneficial solution, however, it involves a well-thought out strategy. As results from the research on the websites of the analyzed companies, each of them presents slightly different information regarding the EVP and the scope of presented data varies. Websites very often offer mostly declarations, for instance, „we offer the opportunities for developing skills". A small percentage of companies provides more detailed information, for instance, about the number of realized training hours in the previous year. *Opportunity for development* is the most important part of EVP in the companies which employ specialists, whereas *Work* is the category of building the image of an employer with a stable situation, offering work-life balance activities. The *work* category is one of the very important elements of EVP in fuel, energy and food companies. Non-wage benefits tend to be proposed in the framework of the *remuneration* category. It is characteristic of big companies which are capable of preparing a wide range of non-financial benefits and in this way they can compete for specialists. However, it should be emphasized that a prospective employee has no chance of evaluating whether the information which is given concerns the position for which the person applies. In order to distinguish oneself from similar EVPs emphasized on the websites of the analyzed companies, it is necessary:

- to define the aims of employer branding in relation with the company strategy and the employment needs,
- to plan in detail what will constitute an EVP which will meet the needs of a prospective employee,
- to develop measures by means of which the needs can be expressed in order to avoid a mere declaration.

A properly planned EVP is a tool of building employer branding not only among prospective employees, but also in the whole external environment of an enterprise.

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SERVICE QUALITY AND CUSTOMER SATISFACTION IN BUSINESS CONSULTING SERVICES: AN IMPORTANCE- PERFORMANCE ANALYSIS BASED ON THE PARTIAL LEAST SQUARE METHOD

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ABSTRACT

The managements of enterprises use business consulting services to resolve a variety of business problems. As such, business consulting services are distinctly intangible, heterogeneous and characterised by a large number of interactions between the service provider and service consumer during procurement and use. In addition, the complexity of business consulting services is further compounded by the many persons of different profiles engaged in shaping the service. For this reason, the users of business consulting services have a high level of perceived risk relating to the procurement and use of the services. Hence, the service provider needs to create a high level of perceived service quality to ensure consumer satisfaction. Accordingly, managers should study the perceived level of service quality and identify what quality dimensions influence satisfaction and to which extent. To do so, they can conduct importance-performance analysis to identify and categorise dimensions in the attributes of service quality with regard to their influence on user satisfaction. Using a sample of 110 managers of Croatian enterprises, this paper analyses the effect of the perceived quality of business consulting services on consumer satisfaction. Perceived service quality is conceptualised using Donabedian's service quality model through the dimensions of service potential, process and outcome. The Partial Least Square technique is used to develop an IPA matrix. Research results indicate that the dimension and attributes of the outcome of business consulting services have the greatest importance for, and influence on, the creation of consumer satisfaction.

Keywords*: service quality, business consulting services, consumer satisfaction, importance-performance analysis*

1. INTRODUCTION

Business consulting services are B2B services used by business organisations to resolve a variety of business problems (Jeschke, 2004). Being based on the transfer of knowledge and information, business consulting services are markedly intangible and heterogeneous. Hence, when service consumers select and use consulting service providers, their level of perceived risk with regard to service quality is high. The high level of perceived risk is further affected by the fact that business consulting services are provided, as a rule, in the form of consulting projects involving a large number of persons of varying capabilities and willingness to be integrated into the service. This makes it imperative for business consulting providers to offer high-quality services and to research the role of perceived service quality in generating customer satisfaction and building long-term customer relationships. Service quality helps to build trust in providers, achieve customer satisfaction, create long-term customer relationships and, ultimately, improve the provider's image and boost financial performance (Meffert, Bruhn, Hadwich, 2015).

Hence, it is essential to determine how service consumers perceive service quality (quality dimensions) and how individual dimensions affect their behaviour towards service providers. To this end, a variety of different approaches can be used to identify priority dimensions and attributes of perceived service quality. In this paper, a PLS method-based IPA matrix is applied to determine the priority attributes and dimensions of quality that affect the satisfaction of business consulting service consumers. This study broadens and complements previous research in the field of service quality by focusing on B2B services and the perception of B2B service consumers, which has, up to date, been explored to a lesser extent relative to the B2C service market. Furthermore, in the current study, service quality is conceived through the dimensions of potential, process and outcome, unlike previous studies that mostly use SERVQUAL-based models more suited to services targeting end consumers. A PLS-based IPMA method is applied in this paper, supplementing the results of conventional PLS analysis and identifying the role of individual dimensions of business consulting service quality in creating satisfaction. The study's limitations and suggestions for future research are presented at the end of the paper.

2. BUSINESS CONSULTING SERVICE QUALITY AND CONSUMER SATISFACTION

In recent years, the study of perceived service quality and related constructs, such as satisfaction, is becoming increasingly important among scholars. Most studies, however, deal with B2C services, while B2B services are largely neglected. As the IPA matrix is based on a structured PLS model of the interdependence of perceived service quality and consumer satisfaction, the theoretical aspect of these constructs is examined in the following sections. B2B services like business consulting services have a large number of attributes that, from the perspective of an information and economics paradigm, belong to attributes of trust (credence qualities) and experience (experience qualities), which the consumer may have difficulty in evaluating prior to service usage (Meffert, Bruh, Hadwich, 2015). Furthermore, business consulting services are provided in the form of consulting projects characterised by a high degree of interaction between the service consumer (manager) and provider (business consultant) (Mc Lahlin, 2000). To a considerable extent, the level of quality, which is difficult to standardise, depends on that interaction. Service quality standardisation is made all the more difficult by the need to integrate the capabilities of business consulting service consumers, and their willingness to receive services, with the capabilities of business consultants and their willingness to provide services (Jeschke, 2004). The difficulty in evaluating business consulting services is further compounded by the fact that consumers are often unable to immediately assess service outcome, because the outcome does not necessarily have to be obvious right after project closure (for example, when the service provided deals with strategic consulting). Finally, because of the nature of the B2B market, obtaining a correct picture of the perceived quality of business consulting services is also complicated by the large number of participants involved in service provision and usage (Homburg 2014). For this reason, marketing academics suggest that different models of various theoretical constructs, such as perceived service quality, should be developed, despite the many similarities between B2C services and B2B services with regard to basic service attributes (Miciak, Desmarais, 2001). Nevertheless, there are controversies in the scientific literature, relating to B2C and B2B services, which refer to the:

1. Conceptualisation of perceived service quality (defining the dimensions and attributes of perceived service quality)
2. Interrelationship between perceived service quality and satisfaction
3. Role of expectations in measuring perceived service quality

2.1. Quality of B2B services

The perceived quality of business consulting services is the difference between perceived service performance and expectations of services; it is the consumer's judgement about the superiority of the services (Parasuraman Zeithaml, Berry, 1988). Essentially, there are no differences between the definitions of perceived service quality for B2C and B2B services. However, because of the special characteristics of business consulting services mentioned earlier, quality models like the generally accepted SERVQUAL service quality model are not suitable for researching the quality of business consulting services. Their unsuitability stems from the fact that when applied to measuring B2B service quality they neglect, or fail to distinguish between, certain service quality dimensions. Hence, various authors have proposed alternative service quality concepts. Gronroos (1984) was among the first to develop a B2B service quality model based on the dimensions of functional and technical quality of services. The functional dimension of service quality encompasses the attributes of the process of, and interactions during, service provision, while the technical dimension focuses on features relating to service outcome. Based on this model, which was not empirically tested, other quality dimensions were identified: professionalism and competencies, reliability and trustworthiness, attitudes and behaviour, accessibility and flexibility, recovery, and reputation and credibility. Also without empirical testing of the model, Szmigin (1998) put forward a concept of B2B service quality based on three dimensions: 1) a hard quality dimension that includes the attributes of activities during service provision; 2) a soft quality dimension that encompasses the attributes of the interaction between service consumer and provider; and 3) an outcome quality dimension that relates to the perceived effects of the hard and soft quality dimensions. On the other hand, because of the difficulties in linking the activities of the service provider to service outcome, Halinen (1999) suggested that service quality be viewed solely through service outcome, using the dimensions of immediate service quality and ultimate service quality. However, studies by other authors have failed to confirm the existence of these dimensions of service quality (Gounaris 2005). Woo and Ennew (2005) developed and tested a six-dimensional model of service quality for B2B services. Their model focuses on service quality more from the aspect of processes and interactions between provider and consumer, and less, from the aspect of service outcome. Finally, one of the more important contributions to developing a B2B service quality model was made by Gounaris (2005) with his INDSERV model. This model looks at B2B service quality through the potential quality dimension, the hard and soft quality dimensions, and the service outcome dimension. Although the model has been tested on different types of B2B services (corporate banking services, ship maintenance services, etc.) and has displayed satisfactory psychometric characteristics relative to the conventional SERVQUAL model, its author notes that the model needs to be further tested on other B2B services, in particular those with a high degree of service consumer-provider interaction, as well as in a different cultural environment. An analysis of the contributions of various approaches to developing quality models reveals there is no generally accepted B2B service quality model and that most authors view service quality through the dimensions of service potential, process and outcome, that is, they base their B2B service quality models on the Donabedian (1980) service quality model. Although originally developed for medical services, the Donabedian model can also be applied to all other types of services. The model's main drawback is its need for defining the attributes of various quality dimensions, which requires additional research. Hence, because of the lack of a generally accepted B2B service quality model, the study of business consulting service quality in this paper is based on the general Donabedian model, explained in detail in the research methodology section.

2.2. Interdependence of B2B service quality and consumer satisfaction

Although perceived service quality and consumer satisfaction are similarly defined as the gap between the perception of a service and the expectation of a service, they are separate concepts. Perceived service quality is essentially considered a cognitive concept (de Ruyter, Wetzels 1998) or a judgement of performance excellence (Oliver 1997), based on a judgement of performance evaluation criteria (Oliver, 1994). On the other hand, consumer satisfaction is considered to be an affective concept or an emotional reaction to the experience of the consumer regarding a service (Oliver, 1989). Both concepts – perceived service quality and consumer satisfaction – can be viewed as a transaction-specific concept, the service consumer's judgement of a specific transaction, or as a cumulative concept, the judgement by a consumer with multiple service experiences (Spreng, Hui Shi, Thomas, 2009). Furthermore, the difference between perceived service quality results from differences in the interpretation of service expectations. In perceived service quality, expectations refer to the consumer's belief of what should be provided, while consumer satisfaction is about predictive expectations (Prasuramann, Zeithaml, Berry, 1988, Zeithamal, Berry, Parasuramann, 1993). Finally, satisfaction can be considered a broader concept relative to perceived service quality. For example, while price may be factored into a consumer's evaluation of satisfaction, it does not necessary have to be part of a consumer's evaluation of service quality. Marketing academics have studied the direction and strength of the relationship between service quality and consumer satisfaction. Most studies have confirmed that the perceived quality of both B2C and B2B services has a positive and statistically significant effect on the level of consumer satisfaction, and no empirical evidence was found of an inverse relationship between service quality and satisfaction (Cronin, et. al, 2000, Chumpitaz, Paparoidamis, 2002, Gounaris, 2005 Jayawardheana, Souchon, Farell, 2007).

2.3. The role of expectations in conceptualising service quality

The role of consumer expectations in measuring service quality is one of the more important areas of research within the service quality and customer satisfaction literature where there is no accord among researchers. Namely, service consumers tend to interpret their expectations of service performance in different ways. For example, expectations of a service can be interpreted by service consumers as forecasted, deserved, minimal or ideal performance (Teas, 1993). Some authors have criticised the SERVQUAL procedure of gap measurement for using a dual scale that separately measures service expectations and, instead, they have proposed alternative procedures for measuring perceived service quality (Cronin, Tylor, 1992; Babakus Boler, 1992; Chatterjee, Chatterjee, 2005; Tsai, Lu, 2006). One of the more important alternative approaches to measuring service quality is the SERVPERF procedure, which was used in this study (Cronin, Taylor 1992). The SERVPERF procedure measures service quality based solely on perceptions, because it considers that expectations are already measured within the framework of perceptions, given that the service consumers' perception of quality is based on a comparison with a specific standard. The advantage of this procedure, in addition to partially resolving the issue of conceptualising expectations, is that it lessens the burden on respondents.

3. PLS METHOD-BASED IPM ANALYSIS

The IPM analysis has been used to identify the influencing factors of satisfaction in various types of B2C services but not in B2B services that have been neglected (Mikulić, Prebežac, 2008). The technique can be carried out using a variety of methods. Conventionally, regression analysis with summated scales is possible when dealing with theoretical constructs that have a large number of indicators. However, regression analysis using summated scales assumes the equal weighting of indicators, which could cause biases in the parameter estimates (Hair, et. al

2016; p. 15). For that reason, when undertaking an IPMA, a SEM method should be applied, in particular the Partial Least Square (PLS) SEM method. The PLS-SEM method is especially useful when the objective of structural modelling is the prediction and explanation of target constructs, as is the case in this study (Rigdon, 2012). The IPMA aims to establish the influence of individual predecessor constructs on specific target constructs. It relates unstandardized total effects, important in predicting a target construct, with their latent variable scores, representing their performance (Hair, Sarstedt, Ringle, Gudergan., 2017; 105). Thus, the IPMA makes it possible to identify constructs and indicators that have a high importance but low performance, requiring the appropriate, priority managerial actions. The results of analysis can be presented graphically at the construct and indicator level, with the x-axis representing unstandardized total effects (importance) and the y-axis representing average latent variable scores, rescaled on a range from 0 to 100 (performance)

4. RESEARCH METHODOLOGY

4.1. Sample

The sample of enterprises was selected from the Business Croatia database, based on a selection framework consisting of 2,761 active medium-size and large enterprises, and from the HAMAG (Croatian Agency for SMEs) database that includes 241 small enterprises. A total of 1,592 enterprises were contacted by email and were sent a questionnaire. The respondents were managers (key informants) across all levels of the selected enterprises, who had had direct experience with the selection and usage of business consulting services. A total of 110 (6.9%) properly filled out questionnaires were returned, while 3.33% of the enterprises contacted stated they had not used business consulting services. Thirteen managers declined to participate due to lack of time. Regarding the structure of the sample, 41.6% of enterprises are engaged in manufacturing 12.7%, in trade; 11.8% in commercial banking and insurance; 10.9%, in hospitality; and the remaining part, in other industries. Concerning the size of the enterprises, 47.3% were large; 35.5%, medium-size and the remaining 17.2%, small and micro enterprises. The managers surveyed largely belonged to the top and middle management levels (73.3%). Most of the respondents (78.2%) were in the 31-50 age-group, and about 60% were male and 40%, female. The educational background of the majority of respondents (68.3%) has a social sciences orientation (economics or law). Although the lack of data on the basic set makes it difficult to judge the representativeness of the sample, some acceptable conclusions can nevertheless be drawn based on the IPA. Namely, secondary data indicate that, generally speaking, business consulting services are used by higher-level managers of larger and more profitable enterprises.

4.2. Measurement scales

In this study, perceived service quality is defined on the basis of the Donabedian model of service quality using the dimensions of service potential, process and outcome. The attributes of these dimensions were defined based on secondary data sources in the literature dealing with the marketing of business consulting services. The dimension of the quality of the potentials of business consulting services was defined using five indicators, representing the prerequisites for a service to be provided. These indicators refer to the technological modernity and suitability of equipment and methodology used; the professional competence of the consultant in defining the consumer's business problems; the professional competence of the business consultant with regard to the activity, environment and method of problem resolution; and the written and verbal communication skills of the business consultant (Hill, 1990; Samson, Parker, 1994; Hoeck, Keuper, 20012). The dimension "business consulting service process" involves activities carried out during the delivery of a service and includes seven indicators that refer to defining the tasks and activities of all participants in the process, adjusting the service to the

consumer's level of knowledge and abilities, adhering to the consulting project schedule, costs and planned activities, ensuring the quality of the information obtained from consultants, etc. (Hoffman,1990; Gounaris 2005; Woo, Ennew, 2005) The dimension "service outcome" refers to the level of success in obtaining the desired outcome from the service and includes the following attributes: degree of implementation of proposed solutions to business problems, level of achievement of consulting project objectives, and the usefulness of knowledge and experiences acquired by the consumer for future business operations (Meffert, 1990, Niedereichholz 2004, Gounaris 2005, Niedereichholz, 2006). A 7-point numerical scale (1 – very low, 7 – very high) was used to measure the attributes of all three dimensions of business consulting service quality. A 7-point numerical scale was used to measure service consumer satisfaction, which was defined using three indicators: the consumer's evaluation of overall satisfaction with the business consulting service, a comparison of service outcome and previous expectations, and a comparison of service received and ideal service (Fornell,Johnson, Anderson, Cha, Bryant, 1996). Table 1 presents all statements, together with an overview of the selected indicators of descriptive statistics.

Table 1: Descriptive statistics (Authors' calculation)

Variable	Statement	Mean	St. dev.
POT1	Technological modernity and suitability of equipment and methodologies used in resolving business problems	5.473	1.291
POT2	Professional competence of the consultant with regard to the enterprise's business activities and environment	5.827	1.205
POT3	Professional competence and analytical skills of the consultant with regard to defining, and finding solutions to, business problems	5.673	1.071
POT4	Professional competence of the consultant with regard to the implementation of planned methods of business problem resolution	5.564	1.247
POT5	Written and verbal communication skills of business consultants	5.636	1.134
PROC1	Clarity, attention to detail, and comprehensiveness in defining the tasks and activities of all participants in the consulting project	5.700	1.133
PROC2	The consultant's adaptability to, and consideration of, the knowledge and abilities of the service consumer	5.600	1.177
PROC3	Adherence to the planned schedule and costs of the consulting project	5.818	1.089
PROC4	The consultant's efforts to actively involve the service consumer in the project and in business problem resolution	5.709	1.231
PROC5	Adherence to planned activities by the consultant	5.645	1.133
PROC6	The consultant's timely response the service consumer's requirements	5.727	1.190
PROC7	Timeliness, comprehensiveness and understandability of information received from the consultant	5.591	1.098
REZ1	Degree of implementation of business problem solutions proposed by the consultant	5.591	1.170
REZ2	Degree of achievement of consulting project objectives	5.627	1.257
REZ3	Usefulness of the knowledge and experience, gained by the service consumer, for the enterprise's future business operations	5.791	1.153
SAT	How satisfied are you with the overall experience of the service provider of **major** business consulting services, with which you have cooperated on the most number of projects	5.409	0.984
SATEXP	To what extent have **your expectations** been fulfilled regarding the **major** services of the business consultant provider with which you have cooperated on the most number of projects	5.227	1.067
SATIDL	What is the distance between the **major** services received from the business consulting provider, with which you have cooperated on the most number of projects, and your view of **ideal** business consulting services	5.018	1.070

Prior to the IPMA, the measurement models were tested and a structural model was created. SmartPLS 3 (Ringle, Wende, Becker, 2015) software was used to test the measurement models and assess the structural model. All measurement scales displayed an appropriate level of convergent and discriminant validity. Factor loadings for the indicator variables were statistically significant ($p<0.05$) and greater than 0.7. The composite reliability (CR) and the average variance extracted (AVE) for all indicator variables were larger than 0.8 and 0.5, respectively. The Fornell-Larker (1981) criterion, applied to assess discriminant validity, was met. The IPMA was performed based on a five-step procedure (Ringle, Sarstedt, 2016, Hair, et. al. 2017): 1) checking if the requirements for carrying out the analysis have been met, 2) computing performance values, 3) computing importance values, 4) creating an importance-performance map, and 5) extending the IPA on the indicator level. The requirements for performing the analysis were fulfilled. All indicators were measured on a metric scale and all indicator coding had the same scale direction.

5. RESEARCH RESULTS

The IPMA allows the grouping of quality service dimensions and attributes with regard to their importance and performance in creating satisfaction, thus enabling enterprise managers to identify priority areas for improving their service offering. By using the PLS method, total effect and average latent variable scores were calculated for the service quality dimensions level and the service quality attributes level of business consulting. In addition, the arithmetic means for Importance and Performance were computed to facilitate the interpretation and identification of priority attributes and dimensions of service quality. This made it possible to classify service quality dimensions and attributes, according to their effect on consumer satisfaction, into four priority groups, depending on whether the service quality dimension or attribute is above or below the average (Martilla, James, 1977): 1) low importance – low performance (Low Priority attributes), 2) low importance – high performance (Possible Overkill attributes), 3) high importance – low performance (Concentrate Here attributes, and 4) high importance – high performance (Keep Up the Good Work attributes).

Table following on the next page

Table 2: Total effects and average latent variable scores for the dimensions and attributes of business consulting service quality (*Authors' calculation)*

Dimensions/Attributes	Total effects (Importance)	Performance
POTENTIAL	0.077	70.853
PROCESS	0.299	72.028
RESULT	0.322	72.692
Average	**0.233**	**71.858**
POT1	0.013	69.455
POT2	0.021	70.682
POT3	0.018	66.818
POT4	0.014	76.061
POT5	0.011	72.727
PROC1	0.046	74.000
PROC2	0.044	65.000
PROC3	0.038	70.455
PROC4	0.037	78.485
PROC5	0.044	66.136
PROC6	0.046	78.788
PROC7	20.045	71.818
REZ1	0.114	71.818
REZ2	0.096	77.121
REZ3	0.111	69.773
Average	**0.047**	**71.942**

The service potential quality dimension is grouped in the low importance – low performance category and the other dimensions, in the high importance – high performance category. To run an analysis on the indicator level, it is useful to present the IPMA results graphically in two-dimensional space with the x-axis representing importance, and the y-axis, performance (Figure 1). The two lines drawn from the mean importance value and the mean performance value divide the dimensions and attributes of business consulting service quality into four groups with regard to their impact on consumer satisfaction, as explained earlier.

Figure following on the next page

Figure 1: IPMA of the quality dimension level and indicator level (By the authors)

Figure 1 shows that all service potential variables and most service process variables have a low importance with regard to consumer satisfaction. As such, they represent Possible Overkill attributes of quality that should be taken into account, although investment in these attributes will not significantly enhance consumer satisfaction. On the other hand, the variables POT1, POT2 and POT3 of the service potential dimension and the variables PROC2, PROC3 and PROC 5 of the service process dimension have a low importance as well as a low performance, placing them in the Low Priority group. Despite these variables not being so important for creating satisfaction, efforts should be made to raise their low levels over a certain period of time. All variables of the outcome dimension are important in creating consumer satisfaction, with the variable REZ3 displaying a low performance, which places it in the High Priority group. A detailed explanation is given in the Conclusion section.

6. DISSCUSION AND CONCLUSION

Because of the characteristics typical of services, the quality of business consulting services is important in creating service consumer satisfaction and loyalty. To successfully manage service quality, the managers of business consulting service providers should be aware of the effects of various quality dimensions and attributes on satisfaction with services. The IPMA helps marketing managers to categorise service quality dimensions and attributes relative to their impact on consumer satisfaction. The IPMA performed on business consulting services indicates that managers should pay attention to all three service quality dimensions, while service outcome, not surprisingly, is especially important to consumers. Furthermore, with regard to service outcome, managers need to focus on providing knowledge and experience that will be useful to, and applicable by, the service consumer in overcoming future business problems (REZ3), and they must take into account the long-term effect of business consulting services on the consumer's business operations. Business consulting service providers also should take care to develop problem solutions that are applicable in practice, and they must

continuously monitor the implementation of problem solutions to ensure that the objectives of the consulting project are achieved. The IPMA suggests that, to this end, business consulting service providers need to continuously make investments into low-performance service potential factors, through additional education and more in-depth project risk analyses, and by studying consumer needs and introducing innovative problem-solving methods and techniques. These factors refer to the equipment and methodology used in problem solving (POT1), the service provider's professional competence with regard to the enterprise's activity and environment (POT2) and professional competence with regard to defining business problems (POT3). Finally, considering how important the integration of the consumer into the process is, to the quality of a business consulting service, the managers of the business consulting service provider should analyse the consumer's capabilities and willingness to be integrated into the service and actively involve the consumer in the process to ensure the transfer of knowledge. Managers must keep abreast of the consumer's needs and wants during delivery of the service to improve the performance of process variables that received low scores in the IPMA (PROC2, PROC3 and PROC5). The study conducted using the IPMA based on a PLS method has several limitations which could serve as a basis for future research. First, the IPMA performed assumes linear relationships among theoretical constructs and indicators. Future research could focus on running IPMAs taking into consideration non-linear relationships between constructs, based on the Kano model of satisfaction (Kano, 1984), for example. This would make it possible to identify which dimensions and indicators, if improved, could lead to an exponential increase in consumer satisfaction. Second, the study was conducted on a small sample involving only business consulting services. Future studies on a larger and better-structured sample could allow for better generalisation and comparison of IPMA results on the market of B2B services. Third, in addition to researching satisfaction, studies could focus on the effect of business consulting service quality on corporate reputation and service consumer loyalty.

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THE IMPACT OF NOSTALGIC FEELINGS ON AN EVALUATION OF BRANDS' PERCEIVED QUALITY

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ABSTRACT

Brand management is one of the greatest challenges of modern marketing. In view of the changes taking place in the environment of modern companies, brand is a reference point which allows the consumer to evaluate not only the material properties of a product, but also the fundamental intangible values associated with the brand. At the same time we can observe the trend of development of the marketing activities that appeal to emotions, experiences and memories of consumers. As a result, the basis of relations between the consumer and the brand can be nostalgia, which is a positive attitude towards brands that are directly or indirectly related to the consumer's past. The implementation of the phenomenon of nostalgia in brand management can create the emotions associated with sensations and experiences important for buyers, often making reference to their own, or an idealized historical past.The aim of this article is to compare the level of perceived quality in case of nostalgic and non-nostalgic brands operating on the Polish market, taking into account the brand category as well as consumers' demographic characteristics. The results of own empirical research conducted in 2017 on a group of 1000 Polish consumers will be presented. The results can serve as a guide for managers in defining what they propose to the customers and can help them identify the crucial values that they need to focus on regarding customers' expectations.

Keywords: *brand equity, nostalgia, nostalgic brand, perceived quality*

1. INTRODUCTION

Perceived brand quality, which is the quality level attributed to products marked with a given brand by their buyers, is a non-material, general feeling connected with a brand. It is a rather abstract concept and not a real attribute of a brand. However, this customer's feeling is based on certain characteristic features attributed to the brand. Research shows that perceived brand quality is influenced by both external attributes, such as price, name, means of advertising, and internal attributes referring to particular physical properties of a product such as colour, structure or shape. The role of external and internal attributes of a product or service depends on the category of the product, group of customers and a given situation. Although numerous studies in the literature describe the impact of chosen internal and external attributes on the brand perceived quality, few studies have analysed the impact of nostalgia on this element of brand equity. The aim of this article is to compare the level of perceived quality in case of nostalgic and non-nostalgic brands operating on the Polish market, taking into account the brand category as well as consumers' demographic characteristics.

2. LITERATURE REVIEW

2.1. The perceived brand quality as an element of the brand equity

Following Aaker (1991, 1996), brand equity is a multidimensional concept, which comprises five components: brand awareness, brand associations, perceived quality, brand loyalty and, finally, other assets linked to the brand. Perceived quality is one of the key dimensions of brand equity and is conceptualized as an intangible overall evaluation of a brand, usually based on some underlying dimensions, such as the products' characteristics attached to a brand, e.g. reliability and performance. It is related to consumers' subjective perception of product's or brand's attributes involved in the decision-making process (Aaker 1991). Keller (1993)

confirms that consumers perceive any product as a set of attributes which may be used to infer its quality. According to Zeithaml (1988), the perceived quality is the global outcome of the experiencing different sensory stimuli that the consumer is unable to analyze, but can be used as an overall assessment of the competitive quality of a brand. Aaker (1996) stated that perceived quality is highly associated with other key brand equity measures, including specific functional benefit variables. Thus, perceived quality provides a surrogate variable for other more specific elements of brand equity. It also has the important attribute of being applicable across product classes. Perceived quality is a main determinant of brands' success (Sprott, Shimp 2004) and it was found to have substantial exert on purchase intention (Bao, Bao, Sheng 2011). A number of authors like Calvo-Porral, Martínez-Fernández, Juanatey-Boga, Lévy-Mangín (2015), Sethuraman (2000), Hoch and Banerji (2000) or Farquhar (1989) have remarked that perceived quality is the main factor in brands' purchase decision. Brand quality also allows for a strong argumentation as regards choices, purchases, positioning, and references, enables higher pricing, and helps to extend the range of products the company offers. Additionally, the perceived quality gap or differential between store brands and manufacturer brands is a relevant issue, given that the better the store brand is positioned in terms of quality, the more likely it is to succeed (Ailawadi, Keller 2004). Consequently, there is a tendency today towards increasing perceived quality level of store brands in many countries (Huang, Huddleston 2009; Jara, Cliquet 2012; Calvo-Porral, Martínez-Fernández, Juanatey-Boga, Lévy-Mangín 2015). The easiest measure of quality level is the number of customers claiming to be satisfied with the brand as compared to all customers. However, this measure neither defines the degree of customer satisfaction nor indicates how the quality of the brand is perceived in comparison to competing brands. That is why measuring relative perceived quality in comparison to other brands is more reliable as it shows explicitly how the brand's position changes as a result of competitors' actions aimed to increase the perceived value of their brands. The question is if the nostalgic feelings of customers have substantial exert on the brand's perceived quality.

2.2. Nostalgia concept

Nostalgia is a universal phenomenon. It can be described as a sentimental longing for the past (Sedikides, Wildschut, Baden 2004; Zauberman, Ratner, Kim 2009). It is experienced when one reminisces about positive events in the past that are unlikely to reoccur (Huang, Huang, Wyer 2016). With the rise of nostalgia in popular culture, marketing research has focused on defining, categorizing, measuring, and analysing this phenomenon in an effort to understand how nostalgia can influence consumers' attitudes and behaviour (e.g., Holak, Havlena 1992; Baker, Kennedy 1994; Sierra, McQuitty 2007; Kessous, Roux 2008, 2010; Lambert-Pandraud, Laurent 2010; Marchegiani, Phau 2010; Muehling, Pascal, 2011; Merchant, LaTour, Ford, LaTour 2013; Merchant, Ford, Dianoux, Herrmann 2015). Holbrook and Schindler (1991) defined nostalgia as a preference (general liking, positive attitude, or favourable affect) towards objects (people, places, or things) that were more common (popular, fashionable, or widely circulated) in the past (e.g., in early adulthood, in adolescence, in childhood, or even before birth). In general, nostalgic memories are related with optimistic emotions like love, pride and joy (Davis 1979; Holak, Havlena 1998; Wildschut, Sedikides, Arndt, Routledge 2006). It can induce feelings of being protected (Juhl, Routledge, Arndt, Sedikides, Wildschut 2010) and thus can counteract feelings of loneliness (Wildschut, Sedikides, Arndt, Routledge 2006; Zhou, Sedikides, Wildschut,Gao, 2008). It is principally a positive emotional experience and contributes to self-positivity, but sometimes nostalgia can be bittersweet (Routledge, Arndt, Sedikides, Wildschut, 2008; Huang, Huang, Wyer 2016).

Stern (1992) classified nostalgia into two types:
- personal nostalgia, which is a longing for the personally experienced past,
- historical nostalgia, which is the desire to retreat from contemporary life by returning to a time in the past that is viewed as superior to the present.

Based on the literature review, the author assumes that nostalgic brand is a brand which is associated with close or far, own or historical past. Consequently, two categories of nostalgic brands can be distinguished (Grebosz-Krawczyk, Siuda 2017):
- generational brands, based on a real nostalgia (relating to the own direct and personal memories), having the individual or collective character,
- transgenerational brands, based on a real nostalgia or simulated nostalgia (referring indirectly to the individual experiences or memories of other people, as well as to the collective experiences and memories in case of historical nostalgia) having the individual or collective character.

3. METHODOLOGY

In this paper, the research results concerning the level of perceived quality in case of nostalgic and non-nostalgic brands operating on the Polish market, taking into account the brand category, as well as consumers' demographic characteristics, are presented. The scientific problem indicates the following research questions related to the nostalgic brand:
- Q1: Is the level of perceived quality for nostalgic brand high?
- Q2: Is the level of perceived quality for nostalgic brand higher than for the non-nostalgic brands?

The research question was developed through the formulation of following hypothesis:
- H1: Perceived quality of nostalgic brands is high.
- H2: Perceived quality is higher in case of nostalgic brands than non-nostalgic brands, regardless of consumers' demographic characteristics and the brand category.

The first stage of research included identification of generational and transgenerational nostalgic brands and non-nostalgic brands. Research was conducted in the Łódź Province (Poland) in the fourth quarter of 2016. 100 respondents answered open-ended question: "Please indicate the brands associated with your life that evokes positive memories". On this basis, the list of 24 brands representing 6 product categories, taking into account such criteria as generational and transgenerational character of the brand, was elaborated by researchers. Next, the researchers created a similar list of 24 non-nostalgic brands that do not appear in the answers of respondents, representing 6 selected categories of products, characterized by an equivalent level of brand awareness and addressed both to women and men. List of 48 brands was verified through the realisation of a survey in a group of 100 respondents, representing different demographic characteristics (age, sex, education). Each brand was evaluated in 5-item scale to determine the degree of nostalgia and the level of brand equity (Grebosz-Krawczyk, Siuda 2017). The second part of the research included the identification and assessment of Polish consumers' attitudes towards nostalgic and non-nostalgic brands (identified in the first stage). A quantitative research among 1,000 Polish respondents was conducted. A method of random-quota sampling was used, which is based on the knowledge of the structure of the general population. Based on the data of the Polish Central Statistical Office, the sample reflects the structure of population in Poland in terms of age (over 19 years) and sex (Chart 1). According to the sizes of research samples depending on the type of cross-tabulation, the sample of 1000 respondents may be considered representative.

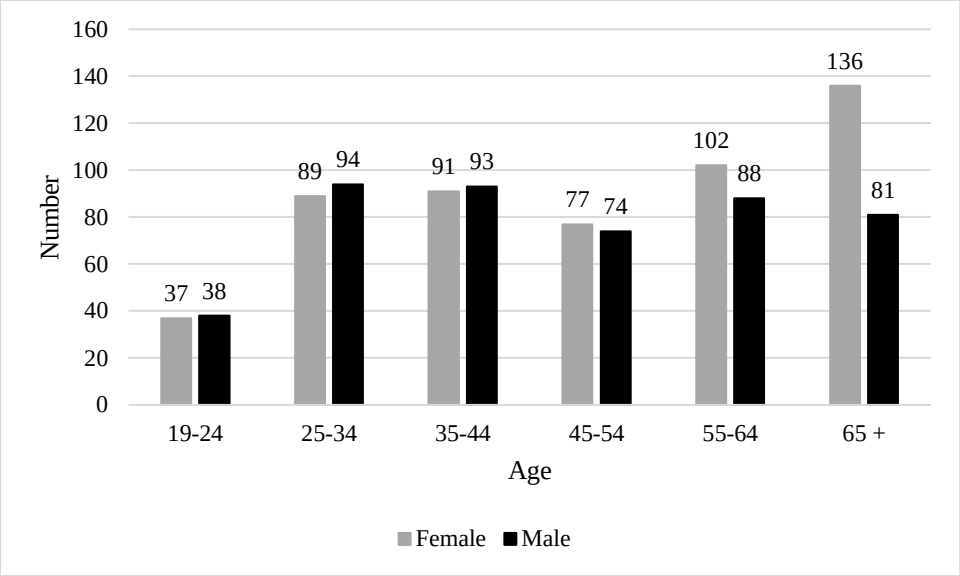

Chart 1: Sample characteristics (Polish Central Statistical Office, 2015).

The indirect method of gathering information, using an online survey technique was applied. The research was carried out in the fourth quarter of 2017. The questionnaire was created with the use of alternative close-ended questions and semi-close-ended questions. The measurement scales designed by Holbrook's (1993), Baker and Kennedy (1994), Aaker (1991), Lacoeuille (2000), Pascal et al. (2002) and Chun-Chin Chen (2014) were applied. To measure the level of perceived quality, 5-point Likert scale was used. Nostalgic and non-nostalgic brands from the same product categories were compared.

4. RESEARCH RESULTS AND DISCUSSION

4.1. Brands characteristic

The list of 24 nostalgic brands, representing 6 categories of products (food, cosmetics, clothing, sport, automotive and household goods), indicated by respondents during the first stage of research as well as a list of 24 non-nostalgic brands, characterized by an equivalent level of brand awareness and addressed both to women and men, are presented in Table 1. Among the identified nostalgic brands, eight brands represent the food industry, four – the clothing sector, four brands are the brands of cosmetics, two brands represent household goods, three brands belong to the automotive industry, one to the sport industry and two represent both sport and clothing sector. Among the brands most frequently cited by respondents, we can distinguish eleven transgenerational brands (indicated by respondents that represent different age groups) and thirteen generational brands.

Table following on the next page

Table 1. Nostalgic brands identified during research and their corresponding non-nostalgic brands (Grebosz-Krawczyk, Siuda 2017, p. 62-63)

Nostalgic brand	Sector	Brand category (G-generational, TG-transgenerational)	Non-nostalgic brand
Fiat	automotive	TG	Opel
Wedel	food	TG	Lindt
Wawel	food	TG	Terravita
Romet	sport	TG	Giant
Nivea	cosmetics	TG	Ziaja
Coca-Cola	food	TG	Sprite
Bambino-icecream	food	TG	Algida
Bambino-olive	cosmetics	TG	Jonhson&Jonhson
Adidas	sport /clothing	TG	Puma
VW	automotive	TG	Toyota
Nike	sport /clothing	TG	4F
EB	food	G	Żubr
Frugo	food	G	Tymbark
Milky-way	food	G	Mars
Polar	household goods	G	Bosch
Riffle	clothing	G	Americanos
Levi's	clothing	G	Lee
Wrangler	clothing	G	Big Star
Zelmer	household goods	G	Electrolux
Relax	clothing	G	CCC
Syrenka	automotive	G	Dacia
Pani Walewska	cosmetics	G	Gabriella Sabatini
Krakus	food	G	Sokołów
Biały jeleń	cosmetics	G	Luksja

4.2. Evaluation of perceived quality

The analysis of the research results demonstrate a positive evaluation of perceived quality in case of nostalgic brands by consumers. The research results confirm high level of perceived quality in case of the majority of transgenerational nostalgic brands (Chart 1). In seven cases studied, over 80% of respondents evaluated the nostalgic-branded products as the high quality products. In three cases studied, over 60% of respondents evaluated the nostalgic-branded products as the high quality products. Only in one case the majority of respondents did not evaluate the nostalgic-branded product as the high quality product. The research results confirm also that perceived quality is higher in case of nostalgic brands than non-nostalgic brands for the majority of transgenerational brands (Chart 1). Only in case of automotive brand, the perceived quality was classified lower that perceived quality of non-nostalgic brand. In case of transgenerational brands, the research results vary depending on the demographic characteristics of the respondents. Women, more often than men, evaluate the nostalgic brands' perceived quality on a higher level, except for the product from cosmetic sector. Hovewer, the statistical analysis (χ^2, p=0.05) did not confirm that there is a relationship between the sex of the customers and the evaluation of perceived quality. In case of transgenerational brands, older customers (45-54, 55-64 and 65+) are more willing to evaluate perceived quality of nostalgic brands higher than younger customers.

Respondents aged 35-44 are the most critical in their opinions. The statistical analysis (in all cases χ^2>32, p=0.05) confirmed that there is a relationship between the age of the customers and the evaluation of perceived quality.

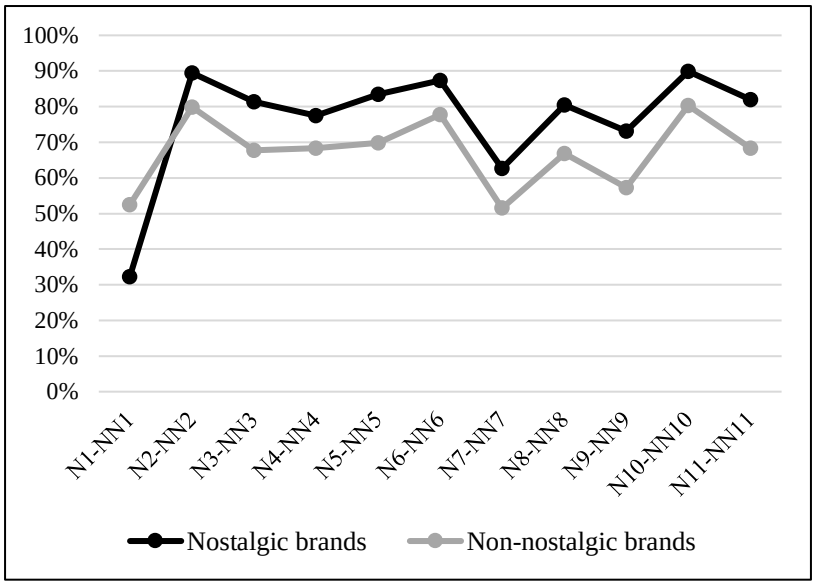

Chart 1: Evaluation of perceived quality of chosen nostalgic and non-nostalgic transgenerational brands(Own elaboration based on the own research results)

Nostalgic brands from the cosmetics and food sectors are the most highly rated in terms of quality (Chart 2). Over 80% of respondents evaluated these nostalgic-branded products as the high quality products. Almost similar level is obtained in sport/clothing sector. In case of automotive sector, two nostalgic brands received extreme evaluations and it is difficult to generalize to the entire industry.

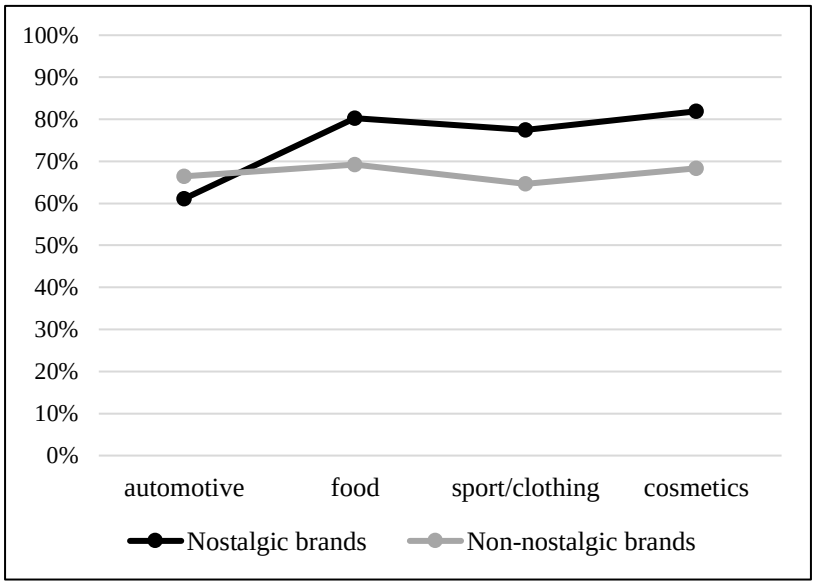

Chart 2: Evaluation of perceived quality of nostalgic and non-nostalgic transgenerational brands (for different sectors)(Own elaboration based on the own research results)

In case of generational nostalgic brands, a positive evaluation of perceived quality by consumers is even higher than in case of transgenerational brands (for selected age ranges).

Over 60% of respondents (for selected age ranges) evaluated the nostalgic-branded products as the high quality products (Chart 3). This situation did not occur only in one case. In six cases studied, over 80% of respondents evaluated the nostalgic-branded products as the high quality products. Moreover, in three cases, over 70% of respondents evaluated the nostalgic-branded products as the high quality products and in four cases – 60%. In case of generational nostalgic brands, perceived quality was on the high level, regardless of the brand category. The research results confirm also that perceived quality is higher in case of nostalgic brands than non-nostalgic brands for the majority of generational brands (Chart 3). As in case of transgenerational brands, only perceived quality of automotive nostalgic brand was classified lower that perceived quality of non-nostalgic brand.

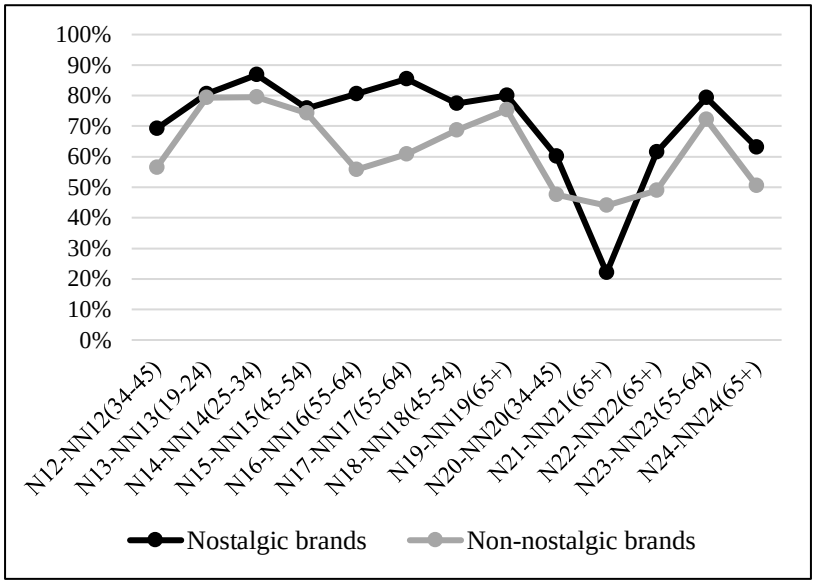

Chart 3: Evaluation of perceived quality of nostalgic and non-nostalgic generational brands (Own elaboration based on the own research results)

Hypothesis H1 predicted that perceived quality of nostalgic brands is high. Based on the research results, it can be stated that hypothesis is supported. Hypothesis H2 predicted that perceived quality is higher in case of nostalgic brands than non-nostalgic brands, regardless of consumers' demographic characteristics and the brand category. Based on the research results, it can be stated that this hypothesis is partially supported. In case of two brands representing automotive sector, perceived quality is higher in case of non-nostalgic brands.

5. CONCLUSION

This study expands the marketing discipline's understanding of nostalgia effects. Based on the empirical results, the author may draw the following main conclusions:

- Perceived quality is an association that is usually central to the brand equity.
- Research results confirm that the nostalgic feelings are an important signal influencing quality perception.
- The brand category does not affect the customers' opinions about nostalgic brands. Perceived quality is higher in case of nostalgic brands than non-nostalgic brands, for both generational and transgenerational brands.
- The type of industry does not significantly affect the perceived quality assessment. The exception are some brands from the car industry.
- The consumers' demographic characteristics does not significantly affect the perceived quality assessment.

It can be stated that this paper has resulted in two contributions. From a theoretical standpoint, it has contributed to the perceived quality concept as well as providing a better understanding of the impact of nostalgic feelings on the brand equity. The author has presented the specific case of the Polish market. From a substantive standpoint, it has shed light on the potential of nostalgic brands as well as on the sources of value for companies managing the brands with strong history. The consumers evaluate not only the material properties of a product, but also the fundamental intangible values associated with the brand. Nostalgia that appeals to the emotions, experiences and memories of the consumers can provoke a positive attitude towards brands that are directly or indirectly related to the consumer past and influence the perceived quality. The conclusions in this study are presented with the caveat as to the limitations of the sample (Polish respondents). To provide a more comprehensive picture of the evaluation of the nostalgia's impact on the brand perceived quality, similar studies could be conducted in other countries and include more sectors.

ACKNOWLEDGEMENT: *The research is a part of a project funded by the National Science Centre (project Opus 9, No. 2015/17/B/HS4/00945, "Nostalgia in brand management") for the period 2016-2019.*

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PRIORITIZATION OF SINGLE ORDERS IN A MANUFACTURING – SERVICE ENTERPRISE WITH APPLICATION OF THE AHP METHOD

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ABSTRACT

The article aims at presenting the single order prioritization results in a manufacturing – service enterprise. The enterprise is operated in Poland, and provides services in design and implementing of automation and industry electrical installations for: technological installations, production halls, office buildings production and processing machinery and equipment, power supply units, water treatment plants and environment protection installations. Single orders executed by the company are project type orders, as they are limited in time, have a specific scope of execution, should be performed at a specific cost and involve economic risk. The company executes several such orders at the same time, which causes constraints in resources availability. Hence, to determine the sequence of orders execution, the AHP method has been applied, facilitating not only selection of the most important order for execution, according to criteria set, but which also indicates ranking of orders. The basis for orders prioritization analysis in the enterprise involves the following criteria selected: NPV index, order execution cost, order duration time and risk. Case study analysis performed, has been based on determining the sequence of three orders execution which has involved: (1) electrical installation execution in a manufacturing building, (2) execution of lighting installation in manufacturing buildings and zones and (3) execution of electrical installation in a water treatment plant. By application of AHP method, it has been possible to indicate which single order in the company should be focused on first. The water treatment plant order has been selected as the first of the orders, as it involves the highest priority for each of the criteria. This refers particularly to the "NPV index", being the most important factor in orders prioritization. The company should move then, to execution of electrical installation order in manufacturing building, and execute the lighting installation for manufacturing buildings and zones as the last order, because this project priority is the lowest.

Keywords: *analytic hierarchy process (AHP), single order, prioritization of orders*

1. INTRODUCTION

Variability of solutions proposed contemporarily in management as well as an intense economic globalisation, particularly the revolutionary changes in IT issues and technique as such, cause, that production company management in 21st century must be directed towards external environment of business. It should first of all be based on defining the enterprise goals in view of the market and customer requirements. Such situation is most frequently related with execution of complex production and service projects (orders) or with simultaneous execution

of multiple orders (projects) (PMI, 2013, p. 9, Dobson, 2002 p. 166). As may be inferred from research published in the paper by A. Lova, C. Maroto P. Tormos: "A multicriteria heuristic method to improve resource allocation in multiproject scheduling", over 80% of enterprises execute multi-project ventures. Over 84% of projects performed in enterprises consist of at most fifty activities, and about 95% of projects consist of nearly one hundred ones (Lova, Maroto, Tormos, 2000, pp. 408-424). Management of such projects (orders) is a long lasting and work consuming process. According to K. B. Hass the more complex a project the more difficult it is to be managed (Hass, 2008). Particularly if a company is to perform several of such orders simultaneously. Then, not only proper approach to project management but also determining their sequence, i.e. prioritizing is significant. Priorities determining in project constitutes an important stage of planning a company activities, as the decision influences efficiency of all projects execution and obtaining profits, both by the enterprise and the customer. The purpose of projects execution sequence is to determine the project ranks according to criteria set by the enterprise. The criteria include mainly: conformity with the company strategy, risk, project complexity, business profits, execution cost, profit and return on investment (Purnusa, Bodeab, 2014, pp. 340-341, Vargas, 2010). Due to the fact that the criteria are very different, it is necessary to select such project prioritization technique which will facilitate determining an optimum project execution sequence. One of such methods is the decision problem hierarchical analysis, which allows decision making through quantity and quality factors analysis. The article is to present the method of single orders prioritization in a manufacturing and service enterprise planning three following orders: execution of an electrical installation in a manufacturing building, execution of a lighting system of manufacturing buildings and areas and of electrical installation in a water treatment plant. The enterprise selected the following criteria for determining the orders execution sequence: NPV index value, order execution cost, order time and project risk. Therefore, to determine the orders execution sequence a method of decision problem analytic hierarchy process (AHP) has been implemented.

2. PROJECTS PRIORITIZATION

The enterprise, which performs several single orders (projects) simultaneously, must determine their execution sequence. For this purpose, priorities are assigned to projects. It is known, that there may appear external and internal orders in an enterprise, being different from each other. External order, executed for a customer, are of a higher priority than internal orders (Leach, 2005, p. 28). The highest priority has therefore to be assigned to external orders, which the enterprise accepted for execution for external customers. Shall an enterprise consider determining a sequence of external orders only, the sequence of orders needs to be determined in a discussion. It is deals with assignment of priorities to tasks in relation to company strategy and aims adjustment. The priorities include both the potential project value and its risks. In order prioritization it is necessary to select first of all the project value and risks evaluation criteria. There are lots of such criteria to be found in literature. The most important ones include (Purnusa, Bodeab, 2014, pp. 340-341, Vargas, 2010):

- financial index (NPV – Net Present Value, IRR – Internal Rate of Return, ROI – Return On Investment)
- execution cost,
- execution time,
- adjustment to an enterprise strategy,
- competitive advantage,
- interest parties engagement,
- productivity,
- technical knowledge,
- project financial risk.

Most frequently, financial indices are applied in projects prioritization, which allow determining future profits from order execution. Criteria applied rather less frequently include engagement of project interest parties or competitive advantage (Purnusa, Bodeab, 2014, p. 341). The decision however, on selection of order prioritization criteria is up to the enterprise management, where one or many prioritization criteria may be selected. If one criterion only is selected, the sequence determining becomes easy. Otherwise it is necessary to establish the importance of criteria and apply an appropriate method for order sequence determining. One of such methods may include decision problem hierarchical analysis, which facilitates selection and determining of ranks according to criteria selected.

3. DESCRIPTION OF DECISION PROBLEM ANALYTIC HIERARCHY PROCESS (AHP) METHOD

The decision problem analytic hierarchy process method has been developed by T.L. Saaty. It is an evaluation technique by means of an absolute scale for measurable and immeasurable criteria (Saaty 2013, pp. 10-13). It helps to evaluate quantified and non-quantified criteria, and measure objective ones with the subjective ones (Saaty, 2008, p. 84). AHP method is based on decomposition of a problem into more simple elements and processing of expert evaluations on the basis of pairs comparison. The analytic hierarchy process is commonly used in supporting of decisions in: economics, technology, logistics, social and environmental problems (Styka, Flaga-Maryańczyk, Schnotale, 2016, pp. 55-87, Chalupkova, Franek, 2014, pp. 76-84, Kumru, 2014, pp. 974-999, Pogarcic, Francic, Davidovic, 2008, Nosol, Solecka, 2014, pp. 269-278). In orders management the AHP method is also applied in solving the following problems at the project planning and execution stages: selection of orders group and resources providers and technology, risk evaluation, selection of extensions for execution (project scope management), selection of the best project time compression scenario, project team members and project manager selection (Al-Harbi, 2001, pp. 19-21, Damdinsuren, Ishdamba, 2017, pp. 155-160, Balubaid, Alamoudi, 2015, pp. 581-589, Prascevic, 2017, pp. 1123-1135, Kendrick, Saaty, 2007, pp. 22-29). Such wide range of applications indicates, that AHP method may also support making decision on orders execution sequence. AHP method has a predetermined structure of problem analysis. There are four steps to be taken to make the best decision according to criteria determined (fig. 1). The first step includes construction of the problem hierarchic model. The problem should be decomposed into smaller elements and a hierarchic tree should be established. For the purpose, decision maker determines superior aim, intermediate aims, partial factors (criteria) and decision variants (Bhushan, Rai, 2004, p. 15, Saaty, 1985, p. 21, Saaty, 2008, p. 85, Taherdoost, 2017, p. 244). The next step includes creating relative value of criteria. Decision maker undertakes a series of element pairs comparisons at each hierarchy levels, determining their dominance in reference to preferences (Bhuhan, Rai, 2004, p. 16, Saaty, 2008, p. 85). Chart 1 includes numeric scale and verbal description of evaluations applied in AHP method.

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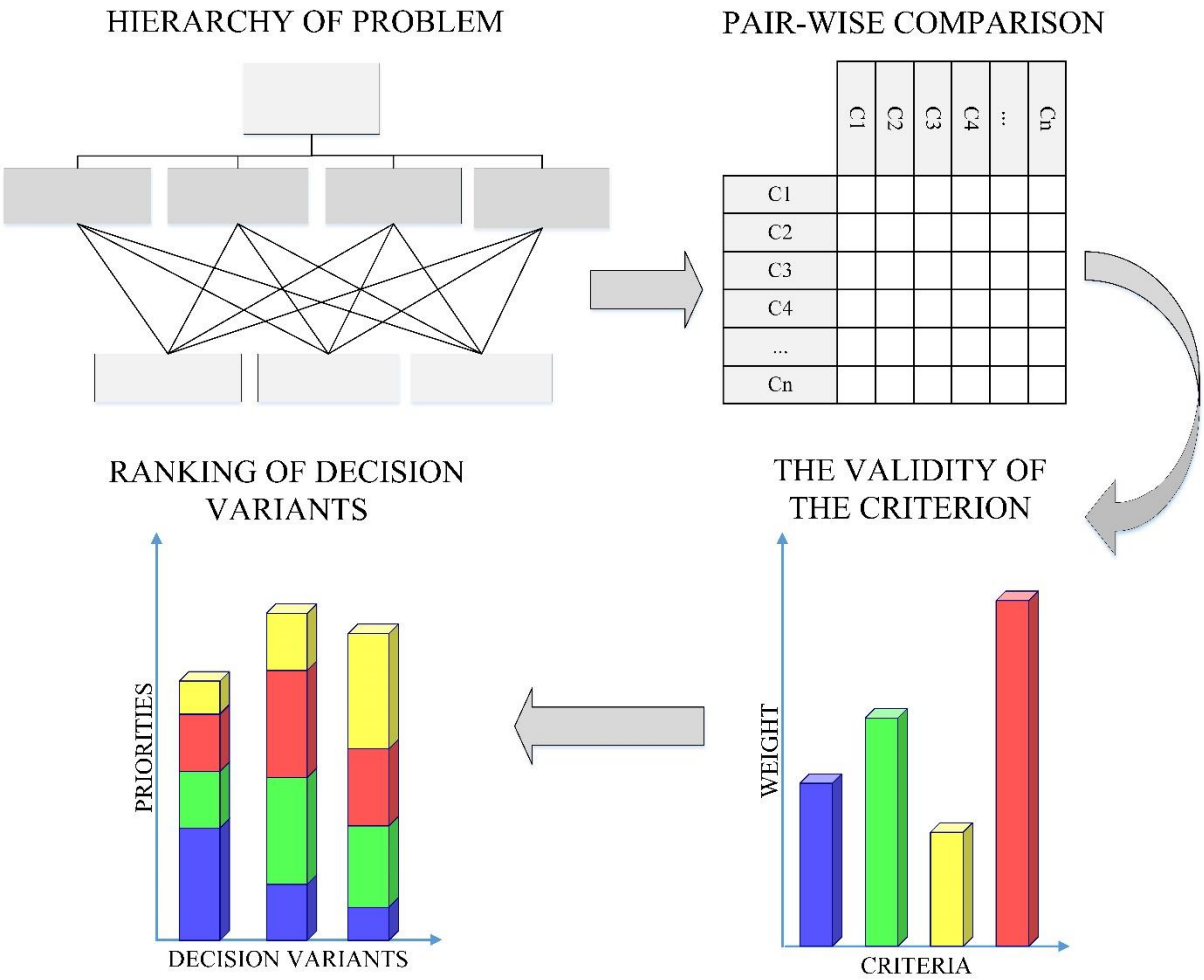

Figure1: Structure Analytic Hierarchy Process, own elaboration based on (Bhushan, Rai, 2004, pp. 15-16, Saaty, 2008, pp. 21-25)

Table 1: Numeric scale and verbal description of evaluations in AHP (Saaty, 2008, p.86)

Numeric evaluation	Verbal evaluation
1	Comparable decision variants or criteria are equivalent
2	Decision maker hesitates between equivalence and a slight dominance of the first criterion (decision variant)
3	Slight superiority of the first criterion (decision variant) over the second one
4	Decision maker hesitates between slight and high superiority of the first criterion (decision variant) over the second one
5	High superiority of the first criterion (decision variant) over the second one
6	Decision maker hesitates between high superiority and significant higher one of the first criterion (decision variant) over the second one
7	Significantly high superiority of the first criterion (decision variant) over the second one
8	Decision maker hesitates between significantly high and tremendous superiority of the first criterion (decision variant) over the second one
9	Tremendous superiority of the first criterion (decision variant) over the second one

The stage finishes with creating a pair comparison matrix of n x n, with n(n-1)/2nd comparisons. The matrix has a diagonal consisting of value 1, which results from equivalence of decision variants or compared pairs of criteria. It is then necessary to determine mutual preferences (weighs) in relation to criteria and decision variants. It is based on calculating criterion weighs, by summing up normalised matrix verses and calculating its vector.

Later, the criterion importance and preferences of alternatives for each of the criteria is determined. It is based on multiplication of a given criterion weigh by the decision variant evaluation value for a given criterion. A result of the formula is a ranking of variants according to obtained measure of each alternative decision quality (Bhushan, Rai, 2004, p. 17).

4. APPLICATION OF AHP METHOD IN ORDERS PRIORITIZATION IN A PRODUCTION AND SERVICE PROVIDING COMPANY

AHP method has been applied for prioritization single orders in an enterprise operating in Poland, and which since 1997 has been executing industry automation orders. The company provides services in design and implementing of automation systems and industrial electrical installations for technological installations, production halls and office buildings, machinery, manufacturing and processing equipment, power supply structures and water treatment plants as well as environment protection installations. The company provides automation systems with applied modern controllers by SIEMENS, GE Fanuc or other manufacturers as indicated by the customer. The company moreover use complex apparatuses and devices, on the basis of products of renowned manufacturers and suppliers. Additionally, apart from automation systems the company workshops produce boxes for control of drives and for distribution of electrical power as well as buildings pneumatic systems. Electrical installations are designed and executed by the company, using modern technologies and equipment of the most known manufacturers. Orders performed by the enterprise are of project type, as they must be completed at specific time at specific cost and provide a product meeting the customer's requirements. Orders are moreover unique and require individual approach in their planning and execution. The enterprise most frequently performs several such orders at a time, which causes that persons directly responsible for their execution, deal with problems of orders execution sequence determining. The enterprise must currently plan execution of three orders: execution of electrical installation in water treatment plant (D1) electrical installation execution in an industrial building (D2) and execution of a lighting system of buildings and production areas (D3). To determine the orders sequence, the enterprise management board selected the following criteria: NPV index value, order execution cost order duration time and project risk. The research applied the analytic hierarchy process (AHP) method, due to criteria adopted, which facilitates making decisions in a situation if the input data are varied, i.e. not only expressed as numeric data but also as quality data e.g. in expert opinions. First of all, to determine the orders execution sequence, a decision maker (company management board) has performed a problem decomposition as hierarchic tree presented in fig. 2. The superior aim is orders prioritization. Partial factors (criteria) include: NPV (C1) index, order execution time (C2), order execution time (C3), and order risk (C4). Orders listed before include proposed or actual solutions, which meet the level of aims assumed in hierarchic model.

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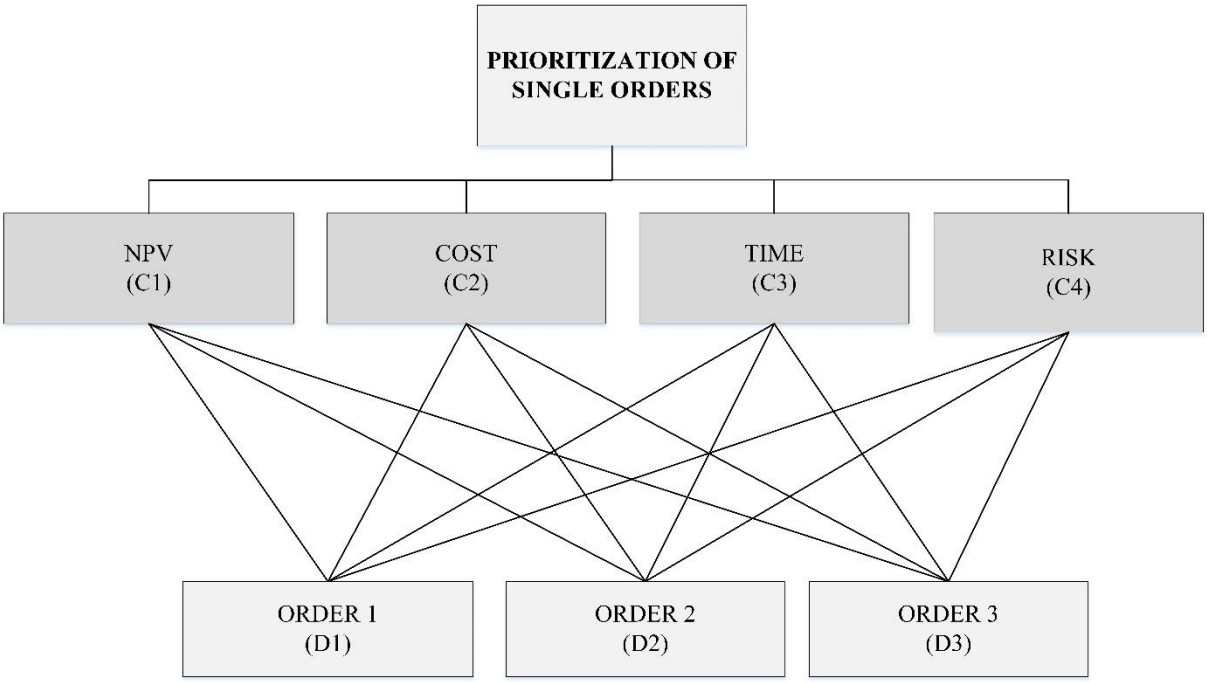

Figure 2: Presentation of the order prioritization problem

The enterprise management board has compared pairs of elements (decision criteria and variants) for every level, according to Saaty's scale (according to chart 1). The pairs comparison gave a criteria comparison matrix (chart 2). According to the AHP method applied, the most important prioritization criterion in company is C1 – NPV index value (55,05%), the other three criteria (C2, C3, C4) are much less important than the first criterion, out of which the least important is the order risk (5,45%).

Table 2: Criteria pairs comparison matrix

Criteria	C1	C2	C3	C4	Vector scales
C1	1,00	4,00	4,00	5,00	0,5505
C2	0,25	1,00	2,00	5,00	0,2237
C3	0,25	0,50	1,00	6,00	0,1713
C4	0,20	0,20	0,17	1,00	0,0545

The analytic hierarchy process analysis of single orders prioritization has facilitated determining the orders execution sequence in a manufacturing and service providing enterprise. Figure 3 has included results of the research conducted, indicating, that the order D1 i.e. the water treatment plant electrical installation execution order, shall be commenced as the first one. The NPV index value of the order is the highest one, being the most important criterion of orders prioritization in the enterprise under analysis. For further criteria (C2, C3, C4), the order is of lower priority (fig. 4), however the final decision variants ranking (fig. 3) indicates its being of the highest priority as compared with other ones.

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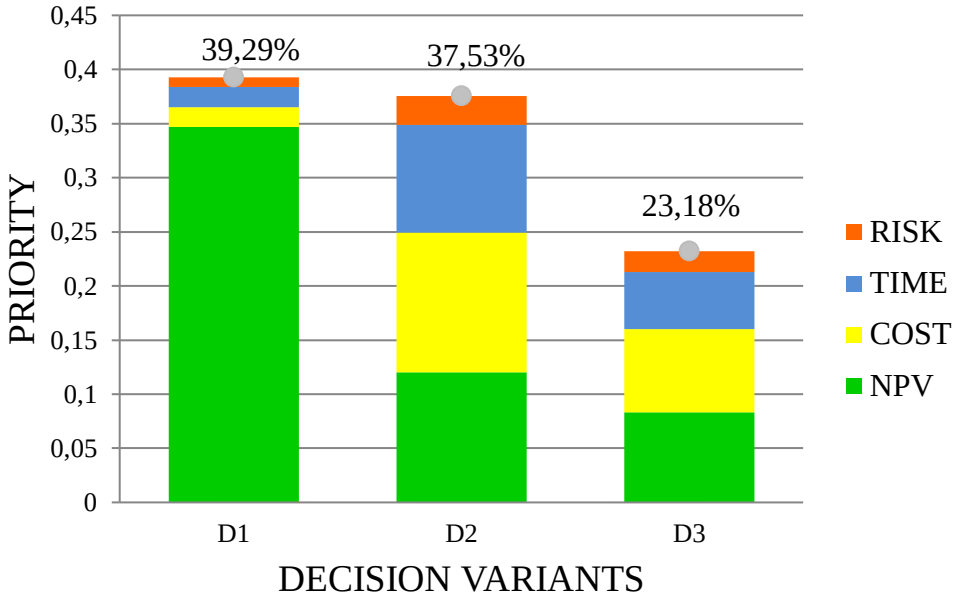

Figure 3: Final ranking of decision variants with aggregated evaluation weighs, from the point of view of individual criteria

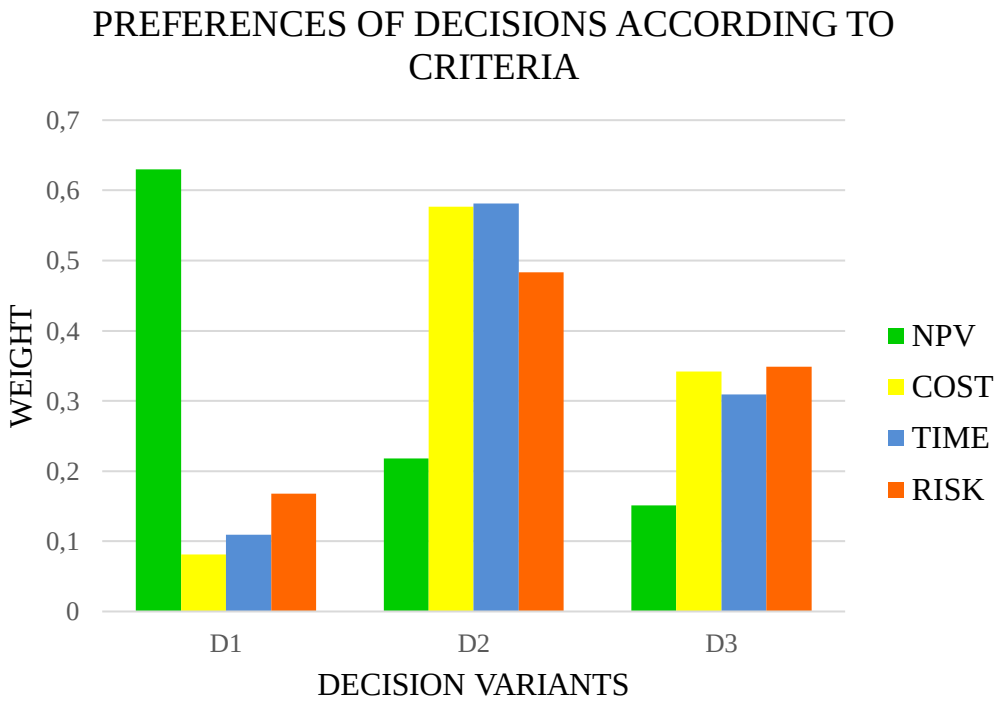

Figure 4: Decision ranking according to criteria adopted

Moreover, the multivariant case analysis indicates, that an enterprise should execute the electrical installation execution order in industry building (D2), as the second order, as in the final variants ranking the decision is second. (fig. 3). The decision rank according to criteria (fig. 4): order execution cost (C2), order execution time (C3), and risk, is of highest priority. The enterprise should execute as the last one the order of lighting system execution in manufacturing buildings and zones, as according to analysis conducted, the order priority is lowest.

5. CONSLUSION

Enterprises performing several single orders should determine the sequence of their execution. Orders prioritization in manufacturing and service providing enterprises is a very important issue, as resources availability constraints appear frequently. At decision making process, regarding the orders execution sequence, it is necessary to analyse in detail the financial and non-financial factors, such as the NPV index value, order execution time, order duration time, and the order risk. In view of the above, it is necessary to apply a problem analysis method which facilitates analysis of quality and quantity value of a criterion. The analytic hierarchy process (AHP), is one of the techniques, which provides a possibility to evaluate measurable and immeasurable values. The application of decision problem hierarchy analysis method allows determining a sequence of single orders execution in one of manufacturing and service providing enterprises in Poland. According to case analysis, the enterprise should first execute the water treatment plant electrical installation order, as the decision is of the highest priority for NPV criterion. The next order to be executed is the electrical installation order for an industry building, which has been assigned the second rank in final ranking and the highest priority for the criteria: order time and order risk. The last place in the ranking has been assigned to the order of lighting system execution for manufacturing buildings and zones, obtaining the lowest priority.

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THE STUDENT LOANS IN SLOVAKIA - THE ECONOMIC IMPACT ON NATIONAL STUDENT SUPPORT SYSTEM DEVELOPMENT

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ABSTRACT

The aim of this paper is to examine the economic impact of the student loans on the national student support system in Slovakia. The social support system for tertiary students in Slovakia, which was significantly enlarged until 2017 to cover more than 21 % of the total higher education population (about 12 thousand students), has been considered a rather successful and relevant policy tool for opening up access to higher education. It follows the practice of an innovative element of mutuality, which was key to making use of private finance at a time when a further extension of public funds was impossible. It complements existing social support grants, rather than replacing them, and hence improves equity in access to higher education by extending students' options. The empirical analysis consist of the descriptive statistics focused on the Slovak student loan market and a financial analysis of the sustainable national student support system providing the student loans in Slovakia. The most significant opportunity that emerged from our analysis is to ensure accessible student loans to every student actively enrolled in higher education. In European countries, the debate focuses on the financing of higher education for several reasons : the rapid growth of this budget, the persistence of social inequalities despite an extensive public financing, and the fact that letting primary and secondary education almost entirely free and publicly funded is generally admitted. However, estimating the long-run cost of student loans is inherently difficult. It requires a model to forecast graduate income and repayment behaviour over many decades in the future.

Keywords: *Student grants, Student loans, Tertiary education*

1. INTRODUCTION

One of the key challenges in developing quality mass higher education systems is to ensure that students have the necessary material conditions to study and fulfil their potential. The question of how this is ensured at national level is a key aspect of the social dimension of higher education, and student fee and support systems are thus important tools of national policies.

However, if students are the main recipients of the benefits to education, they are not the sole. Social returns exist. The efficient solution is then a mix of private and public funding. As a consequence, social returns must be evaluated not only to set priorities for future educational investments but also to be compared with private ones in order to choose the efficient mix of private and social funding, especially to avoid overeducation if higher education is too much subsidised, as well as underinvestment in the opposite case. EU Member States recognize a strong need for highly qualified labour. Several Member States have explicit policies to raise participation rates in higher education and all have agreed an EU level target for attainment rate of 40% of the 30 to 34 years-old (Findeisen, Sachs, 2016, p. 19). The ageing of populations compounds the need for periodic education and training: as the labour force shrinks, raising labour productivity increasingly becomes the efficient way to maintain standards of living.

2. SUPPORT SCHEMES FOR TERTIARY STUDENTS

All European countries offer at least one type of direct support (a grant or a loan) to full-time students in first cycle studies (Figure 1). In most systems, both grants and loans exist but they are not linked and students need to apply through separate procedures (European Commission, 2017, p. 14). More and more students today are having to get much more money in order to finance their future through student loans. What this creates is a situation with many students having to go deep into debt before they ever start out financially. Though this is not an ideal situation, it is one of the realities that students are dealing with today.

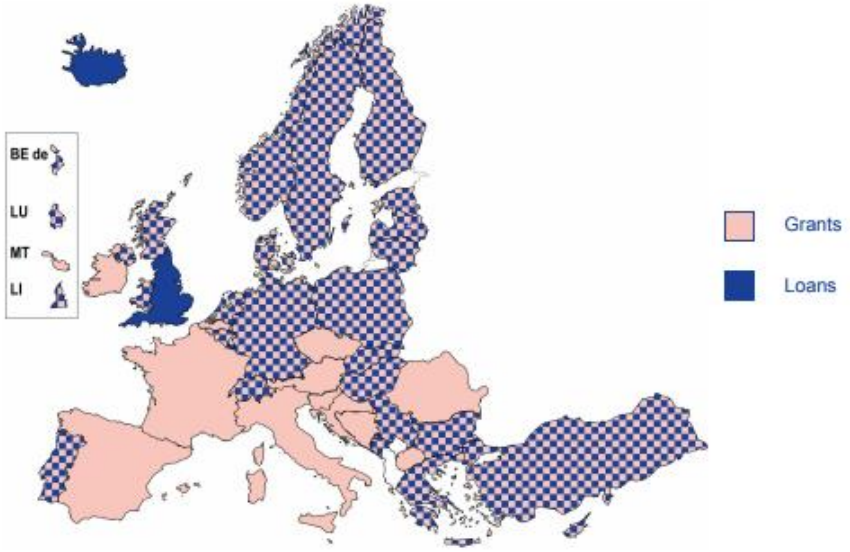

Figure 1: Main types of direct students support to full-time students (European Commission, 2017, p. 15)

Repayment conditions are one element that may influence the attractiveness of loans (Cingula Bogdanović and Hasanović, 2014, p. 450). The majority of countries reported that loans are guaranteed by the state/region and usually with favourable interest rates (around 1-2 %). Similarly, the majority of countries require students to start loan repayments one-two years after graduation. The exceptions are Serbia (repayments begin immediately upon graduation), Hungary (four months after graduation), Sweden (six months after the diploma is obtained), Norway (seven months after graduation) and Germany (four years after graduation). In the United Kingdom (England, Wales and Northern Ireland), loan repayment starts when the graduate obtains employment that pays above a 'repayment threshold'. As far as the repayment period is concerned, it may be linked to the legal length of the study programme – twice the programme duration in Estonia and Finland, and equal to the programme length in Portugal and Turkey. Alternatively, it can be linked to a maximum age (40 in Hungary, 60 in Sweden) or set in years (from 10 years in Bulgaria and Luxembourg to 35 years in the Netherlands).

2.1. Student Support Scheme in Slovakia

The higher education sector in Slovakia is subject to a wide reform covering accreditation, funding, cooperation with employers and widening the social makeup of the student population. The number of students enrolled in tertiary education determines, in part, a country's future competitiveness in terms of its ability to create, transform, and use knowledge in innovative ways (Figure 2). The tertiary educational attainment rate nearly doubled over the last decade, increasing from 14,4 % in 2006 to 28,4 % in 2015 (Ministerstvo školstva, vedy, výskumu a športu SR, 2017, p. 23).

In view of the strong correlation between tertiary education and the educational attainment of parents in Slovakia, pointing to low social mobility, efforts are needed to broaden the socioeconomic make-up of the student population.

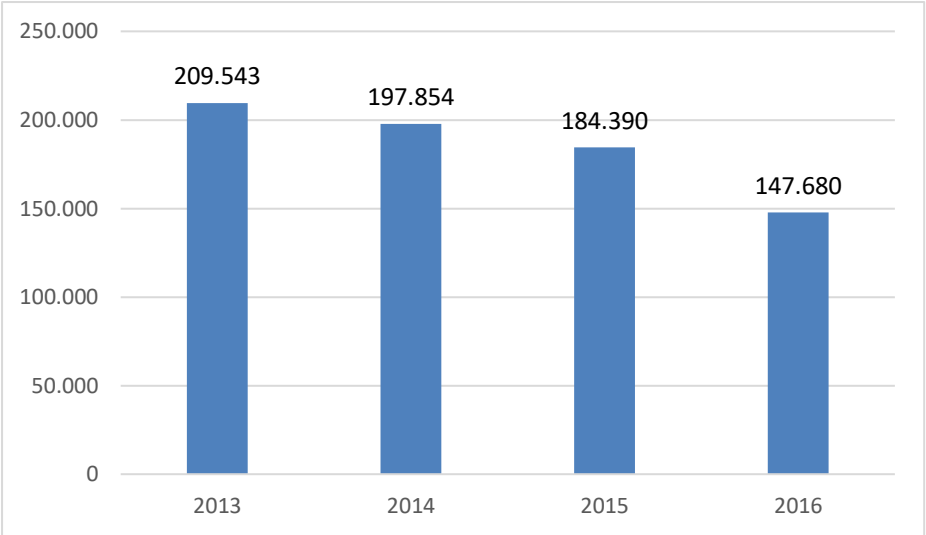

Figure 2: Students enrolled in tertiary education (2013 - 2016) in Slovakia (Ministerstvo školstva, vedy, výskumu a športu SR, 2017, p. 23)

Education has long be seen as a crucial tool for national development, with various education initiatives designed to work towards eliminating poverty, increasing the health of a population or enhancing local economies, among others (Rentková, Panevski, 2017, p. 4014). As the impact of the global financial and economic crisis was felt across the EU 28, expenditure on social protection relative to GDP increased by 2.8 percentage points between 2008 and 2009. In 2012, there was a change in developments, as social protection expenditure increased by 3,3 % compared with GDP growth of 1,9 %, resulting in a 0,4 percentage point increase in the ratio of social protection expenditure to GDP. The latest information available relates to 2014, when there was an overall increase of 2,6 % in the level of EU 28 social protection expenditure. However, this was counteracted by a somewhat faster pace of economic growth and therefore resulted in the share of social protection expenditure relative to GDP falling by 0,2 percentage points to 28,7 %. The ratio of social protection expenditure to GDP was 2,8 percentage points higher in 2014 than it had been in 2008, while social protection expenditure in the EU-28 grew overall by 18,5 % during the period under consideration (equivalent to an average of 2,9 % per annum). Among the EU Member States, social protection expenditure represented less than 20,0 % of GDP in the Czech Republic and Slovakia (Eurostat, 2017 b).

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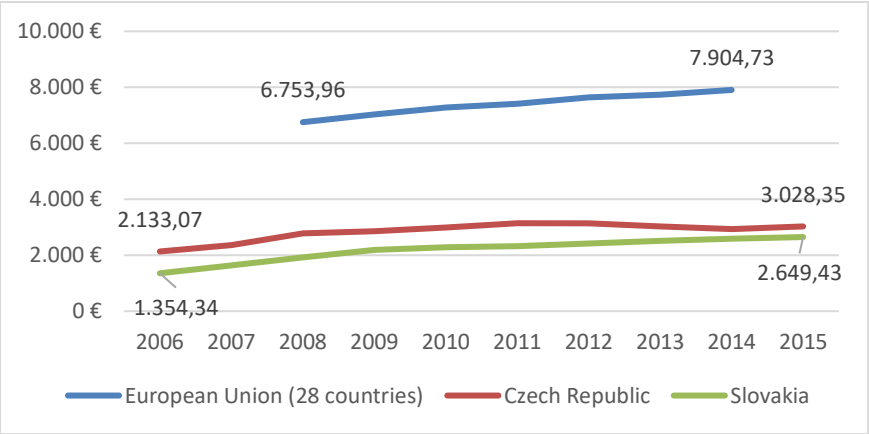

Figure 3: Social protection benefits per capita (2006 - 2015) in selected countries (Eurostat, 2017 b)

Many eastern regions of the EU 28 were less adversely affected by the medium and long-term effects of the global financial and economic crisis and saw their relative living standards improve at a rapid pace; this was particularly the case for regions in Slovakia and Czech Republic (Smoleň, 2013). Regions where real GDP per capita is less than 75 % of the EU average (taken over a period of three years) are eligible for support from the Structural Funds. The European Social Fund and the European Regional Development Fund support activities, which help to:

- modernise education and training systems, including investments in educational infrastructure,
- reduce early school leaving,
- promote better access to good quality education for all, from the primary to the tertiary level,
- enhance access to lifelong learning,
- strengthen vocational education and training systems.

Figure 4 shows the development of GDP per capita as an indicator of national wealth in case of Slovakia and the Czech Republic. The Czech Republic has a level of GDP per capita between 10 % and 20 % below the EU 28 average. Although the increase of this indicator, the GDP per capita of Slovakia is less than 30 % below that EU 28 average.

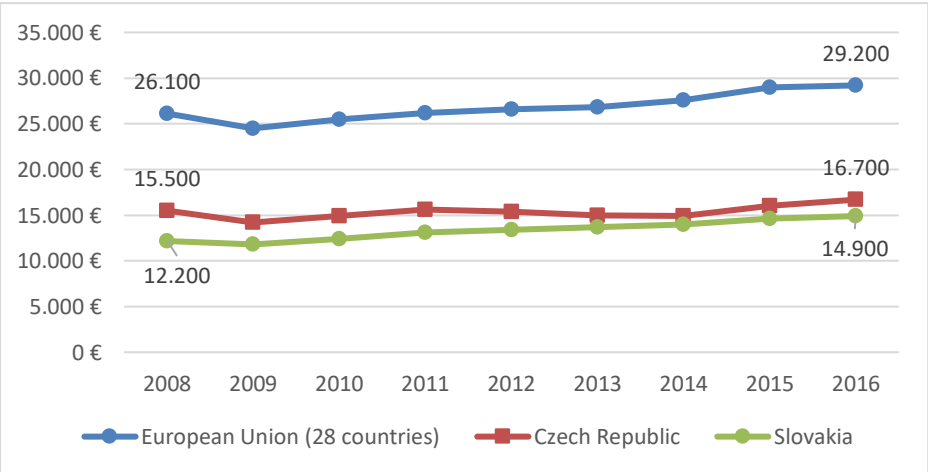

Figure 4: Development of GDP per capita (2008 - 2016) in selected countries (Eurostat, 2017 a)

2.2. Role of Student Loans

One of the most popular (and most difficult to answer) questions in student loan research asks how debt affects various behaviors. This literature is remarkably inconsistent. Some scholars conclude that credit constraints are not a problem; rather, student's "ability" and family environment explain why they do not attend college. Still others find loans play a systematic role in enrollment behaviors, sometimes negatively and sometimes positively. Studies have found subsidized loans to have a positive relationship with enrollment, where those receiving loans were more likely to persist (Chen, DesJardins, 2010, p. 189, Payne, 2016, p. 17). Borrowers need sufficient and timely information to ensure they are aware of their eligibility for and can make informed decision about available repayment options (Cliette and Taylor, 2013, p. 7). Thus, providing consistent information to all borrowers who have entered repayment woul support Education Support Fund's goal to provide superior information and service to borrowers.

3. METHODOLOGY

We reviewed the long literature on the effects of financial aid on student behavior by examining the role of grants, loans, and other forms of financial aid. What are the effects of these different types of aid and how do they compare? Various approaches to answering these questions are discussed along with their drawbacks and benefits. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Our paper provides various indicators related to access to education, participation and progression that are a mixture of outcome indicators, policy levers and context indicators. But they can also provide contexts for establishing policy by identifying areas where policy intervention is necessary to address issues of inequity. Public net financial returns are measured in a similar fashion to private net financial returns and are also based on the difference between costs and benefits associated with an individual attaining an additional level of education. Costs include direct public costs for supporting education and foregone tax revenue on earnings. Benefits are calculated using income tax, social contributions, social transfers and unemployment benefits.
The Education support fund, the Slovak student loan institution, is a non-state special-purpose fund established in 2013. The Education support fund as the important part of the social system scheme in Slovakia, provides loans to students in higher degrees in Slovakia and Slovak students studying abroad. When students borrow state loans, there are limits on how much they can take out. Aggregate loan borrowing is capped at EUR 11 500 for master students, EUR 13 500 for PhD. students.

4. RESULTS AND DISCUSSION

Public spending includes expenditure on universities and other public and private institutions delivering or supporting higher educational services. Public entities include ministries other than ministries of education, local and regional governments, and other public agencies. This indicator shows the priority given by governments to education relative to other areas of investment, such as health care, social security, defence and security. Investment in educational institutions as a percentage of GDP in Slovakia is one of the lowest across the EU Member States: for tertiary education, the public spending on educational institutions is only 0,97% of GDP, compared with an EU 28 average of 1,27%.

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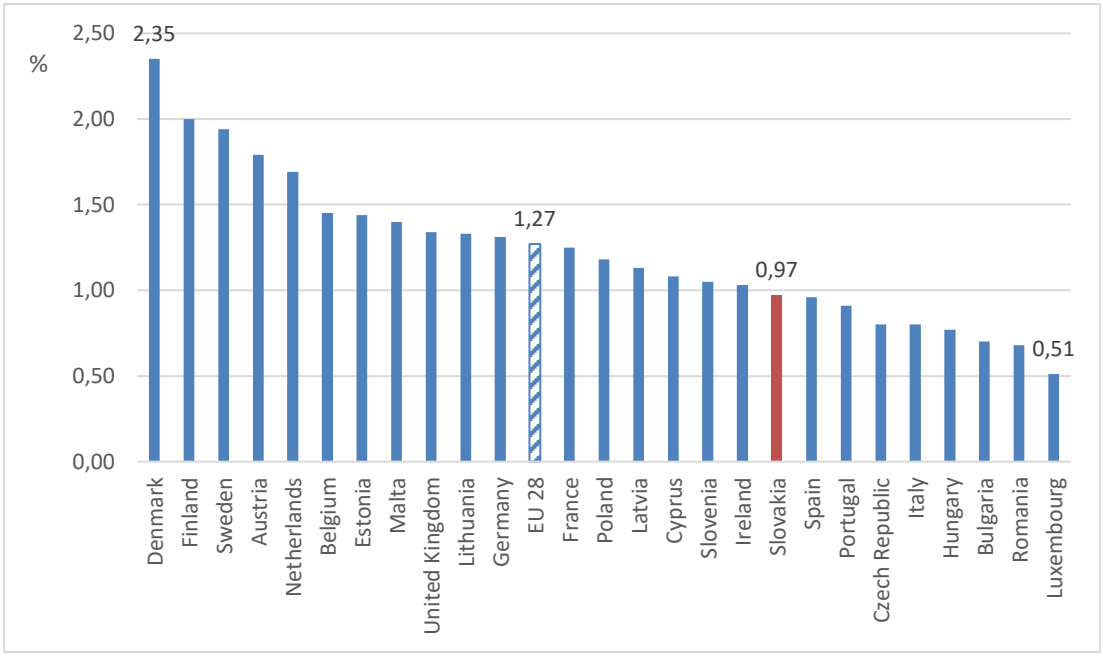

Figure 5: Public Expenditures on Tertiary Education as Percentage of GDP in 2014 (Eurostat, 2017 a)

Figure 6 displays unemployment rates among graduates under 25 years from 2008 till 2016 (Eurostat, 2017 c). The unemployment rate of graduates under 25 years reached in Slovakia is under the EU 28 average in 2015 and 2016 (Musilová, Stachová, 2017, p. 5357). On the other side, Czech Republic had better results in this area.

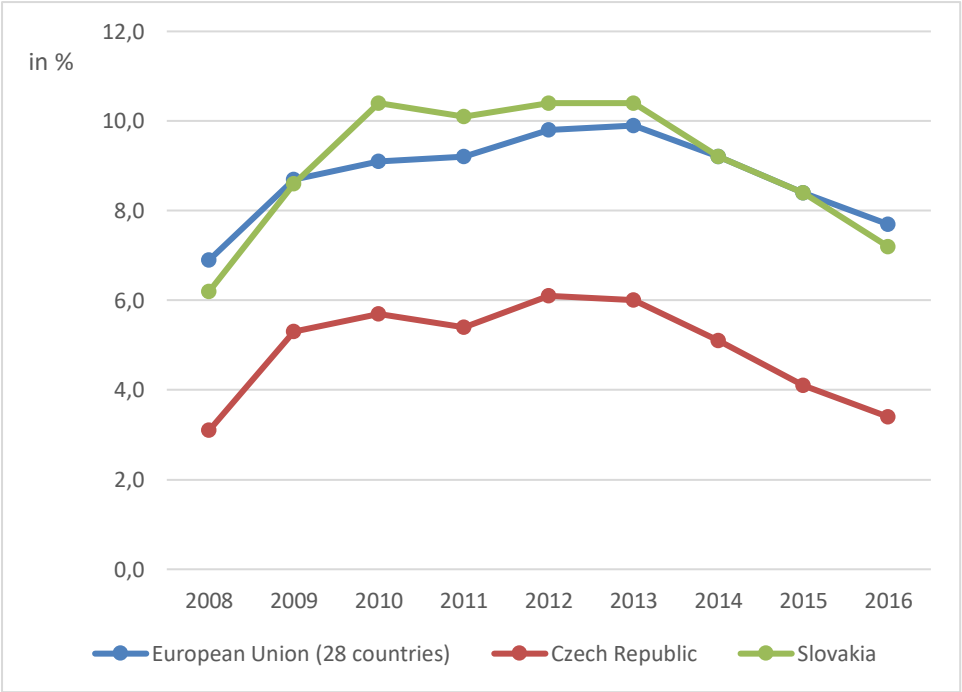

Figure 6: Unemployment of the young people under 25 years (Eurostat, 2017 c)

As one can see, mostly between the time period 2012 - 2016 the amount of spent social grants was lower than the budgeted amount (Figure 7). We recommend to fund the student loans from the unspent social grants. The amount of students applying for student loans are increasing.

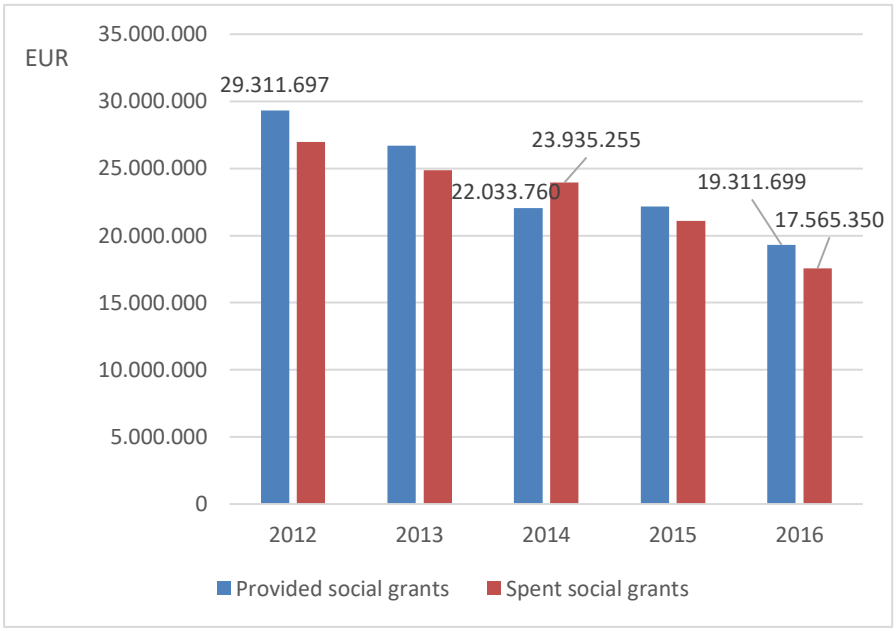

Figure 7: Provided and spent social support grants for tertiary students (2012 - 2016) in Slovakia (Ministerstvo školstva, vedy, výskumu a športu SR, 2017)

Due to the lack of financial resources, the overall amount of student loans has been decreasing from the beginning of the Education Support Fund (Figure 8). If the Education Support Fund is not funded, it will be possible to allocate maximum of EUR 2,8 million annually to loans for tertiary students. The development of the interest rates was influenced by very low interest rates in the financial markets.

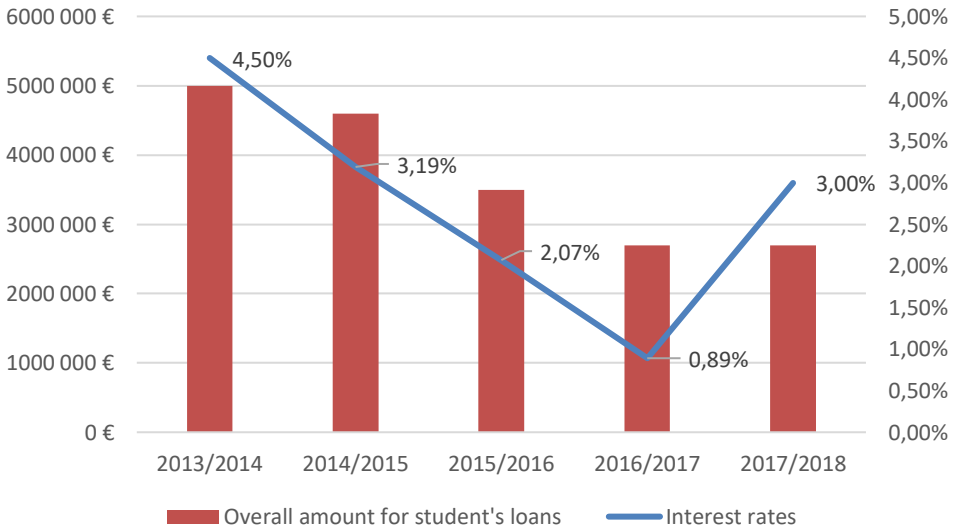

Figure 8: Overall amount of student loans and development of interest rates from academic year 2013/2014 to 2017/2018 (Education Support Fund, 2017)

Total public benefits in the Slovak republic also differ between men and women, due to differences in labour market outcomes. This suggests that government have a role to play in easing the integration and participation of women in the labour market, in order to assure higher gains from the large investment of women in their education (Mikuš, 2017, p. 21). One can see public net financial returns were higher in the Slovak Republic than in Spain or Estonia (Figure 9).

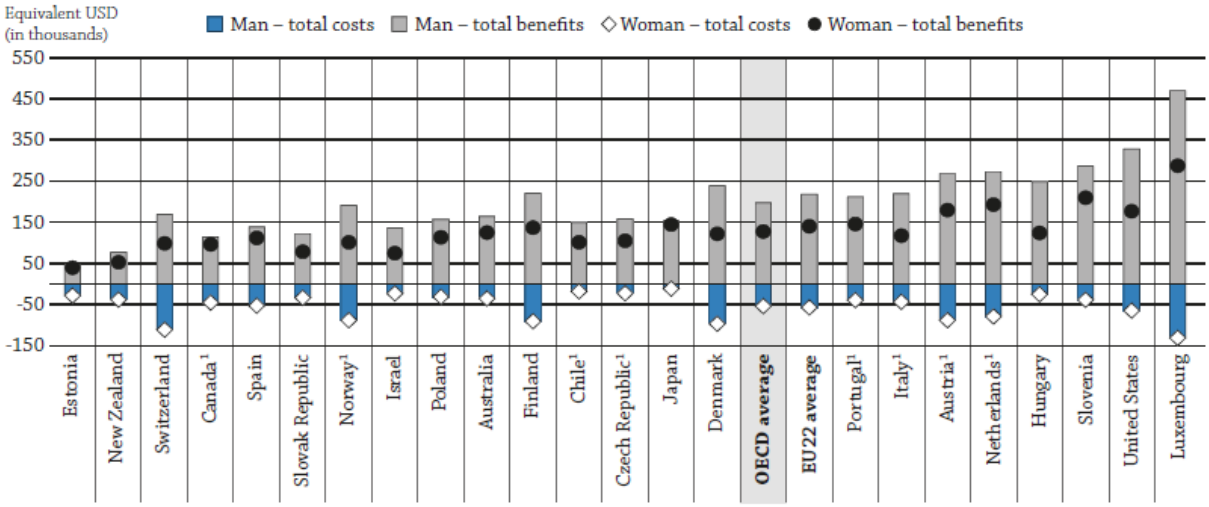

Figure 9: Public costs and benefits of education on attaining tertiary education in 2012 (OECD, 2017, p. 194)

More than an end in itself, education is a means to deliver our vision of tomorrow. It is the foundation for promoting development, reducing economic disparities and creating a society of inclusiveness. Prosperous countries depend on skilled and educated workers, but more than ever, they also depend on a set of coherent strategies that link education outcomes to the needs and demands of society in a way that fosters inclusive growth.

5. CONSLUSION

Publicly subsidised loans provided by the Education Support Fund are available for full- and part-time students throughout the regular duration of study programmes. Loans range from EUR 500 to 2 300 per year and are taken by about 1 % of students. The first major conclusion claims that the tertiary educational attainment rate nearly doubled over the last decade, increasing from 14,4 % in 2006 to 28,4 % in 2015. The social support system for tertiary students in Slovakia, which was significantly enlarged until 2017 to cover more than 21 % of the total higher education population (about 12 thousand students), has been considered a rather successful and relevant policy tool for opening up access to higher education.

Repayment conditions are one element that may influence the attractiveness of student loans. The majority of EU 28 Member States reported (included Slovakia) that loans are guaranteed by the state and usually with favourable interest rates (around 1-2 %). Similarly, the majority of countries require students to start loan repayments one-two years after graduation.

The third major conclusion relates to the relative effectiveness of grants versus loans and other forms of aid. Grants have been shown to be an effective way to increase college attendance.

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MARKET CAPITALIZATION, ENTERPRISE VALUE AND BRAND VALUE OF THE WORLD`S MOST REPUTABLE COMPANIES

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ABSTRACT

When assessing a company most of the investors are searching for the best investment or for the investment with a great growing potential. But, what is a good investment? Beyond the production (in general), companies can increase their value also through branding, reputation, social responsibility performance, financialization or market capitalization. The purpose of the present study is to analyze the correlation between brand value (the monetary value of a brand if it is considered an assets and it is shown in balance sheet), market capitalization (the value of total number of shares multiply by price per share), enterprise value (considering also total debt and cash of a company) and corporate reputation in order to identify if there are some connections between them. The samples are companies that are ranked into: 2017 Global RepTrak 100: The World`s Most Reputable Companies; Fortune Global 500: The World`s largest companies by revenues; Forbes: The World`s Most Valuable Brands. In the same time, it will be used data from balance sheet, income statement, and capital market. According to our analysis, the main results of the study are confirming our hypotheses. There is a direct and strong correlation between brand value and market capitalization (brand value can drive to a higher price per share) and enterprise value. Even if, could be a correlation between company reputation and price per share (in terms of market capitalization), our findings showed that there is no direct correlation between them.

Keywords: *brand value, corporate reputation, enterprise value, market capitalization*

1. INTRODUCTION

Nowadays, companies are activating and develop their businesses into a turbulent environment. They have to face multiple and complex challenges and, in the same time, have to meet all stakeholders expectations. From this perspective, concepts like market capitalization, enterprise value, brand value or corporate reputation are omnipresent into the day by day business strategies. Moreover, the stakeholders` pressure will significantly impact the company management. This study was designed to examine if there are significant correlations between brand value (the monetary value of a brand if it is considered an assets and it is shown in balance sheet), market capitalization (the value of total number of shares multiply by price per share), enterprise value (considering also total debt and cash of a company) and corporate reputation (measured by RepTrak System). The paper is structured into three parts: the literature review part by considering state of art and developing the research question; the data and results section that first describes the sample and the variables, and second presents the findings of the research; the conclusion part by summarizing the answer to the research question.

2. LITERATURE REVIEW

Considering market capitalization, enterprise value, brand value and reputation of a company represents an attempt to satisfy all stakeholders from shareholders to clients, from employees to society. Increasing stakeholders support enhances the financial valuation of a firm (Henisz, Dorobantu and Nartey, 2014). Companies must reevaluate they own assets in the new economy (Walter, Halliday and Glaser, 2002) by integrating sustainability (Lazonick and O`Sullivan, 2000; Moore and Manring, 2009; Laurenco et al., 2012), responsibility (Husted and Allen, 2009; Tracey, Philips and Haugh, 2005; Zeng, 2006) and reputation (Srivastava et al., 1997;

Regan, 2008) into the business global strategies in order to increase or to create value. In 2013, Crilly has designed an integrative framework in order to emphasize the corporate value creation based on three central dimensions: strategic intent, boundaries, and organization design (Figure 1).

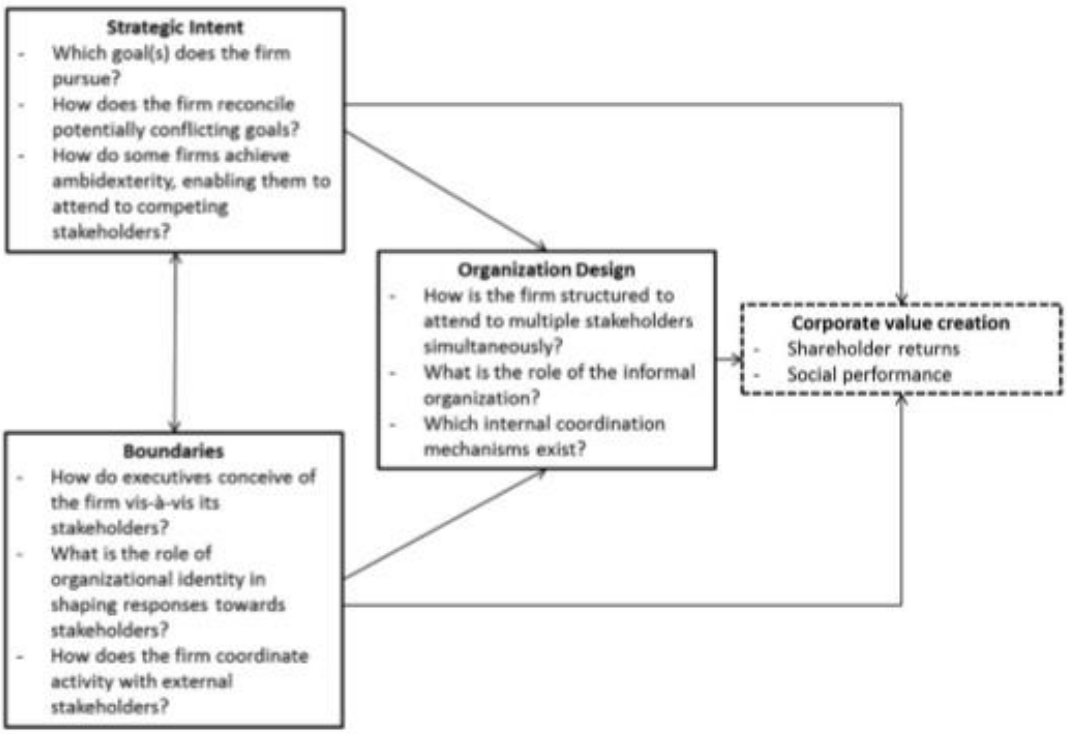

Figure 1: Corporate value creation (Crilly, 2013)

In order to accomplish their goals (increase enterprise, brand and reputation value), companies have to revised and correctly balance their assets by adding, beside tangibles, also intangibles like customer loyalty, brands awareness and familiarity, goodwill, patents, distribution, human capital and, not least, reputation. It is often argued that brands can increase the company`s market capitalization, it is able to create or add value, and to contributed to the firm performance, beyond the point of production of goods or services (Barth et al., 1998; Morgan and Rego, 2009; Willmott, 2010). Kotler and Pfoertsch (2007) suggest that companies can benefit tremendously from a vibrant brand and its implicit promise of quality since it can provide them with the power to command a premium price among customers and a premium stock price among investors. Nevertheless, brands are the lifeblood of companies, stated Steenkamp (2014). They generate market share, increase customer loyalty, amplify channel power, offer the potential for higher profit margins, and guard against competitive attacks. The same author have proposed a model based on four valued factors/categories (valued brands, value sources, value delivery, and valued outcome) in order to respond to the research question: How global brands create firm value (Figure 2).

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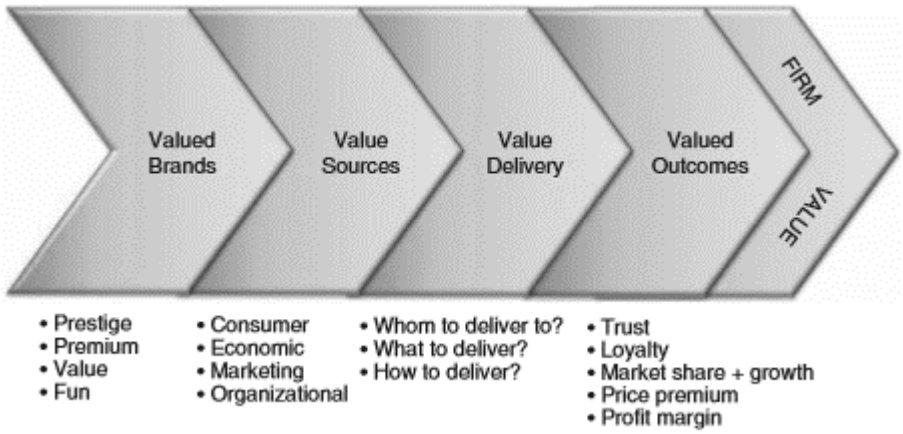

Figure 2: The 4-V model of firm value (Steenkamp, 2014)

Several empirical studies have also examined the relationship between corporate reputation and market value/market capitalization or firm value (Fombrun and Shanley, 1990; Berger et al., 2006; Kumar and Shah, 2009; Servaes and Tamayo, 2013). Cao, Myers, Myers and Omer (2015) defined the company reputation as the observers' collective judgment of a corporation based on assessments of the financial, social, and environmental impacts attributed to the corporation over time. Black, Carnes and Richardson (2000) provided evidence that corporate reputation has value relevance, because its ability to explain the firm's market value of equity. Moreover, Cao, Myers and Omer (2015) have investigated over 9000 large US companies and they concluded that companies with better reputation enjoy a lower cost of equity financing. They article`s findings suggest that changes in reputation are associated with subsequent changes in the company's investor base, consistent with reputation rankings affecting investor recognition and improving risk sharing. Madden, Fehle, Fournier (2006) showed that strong brands not only deliver greater returns to shareholders but do so with less risk. In an attempt to demonstrate that good corporate reputation can enhance the market value of a company, Dowling (2006) has developed a model of sharemarket valuation considering variable described by Copeland, Koller and Murrin (2000). The model integrate value drivers, financial indicators, intrinsic value and share price. But also, it can be systematically approaches: a high share price can generate higher return and growth, more cash, and an increase on corporate reputation and enterprise value.

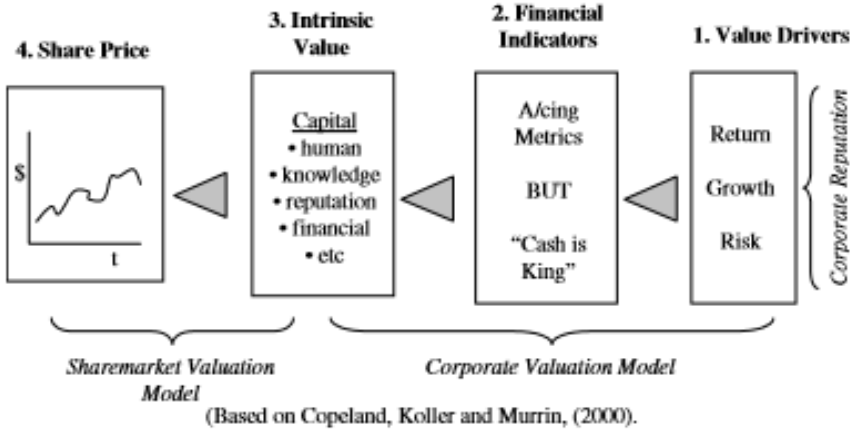

Figure 3: Four-part model of sharemarket valuation (Dowling, 2006)

Nevertheless, companies have to be aware on the boomerang effect. It is very hard to deal with reputation. Investors react strongly negative to negative events in the company`s live (and we

refer here on reputational risk) and weakly positive to positive events (Krüger, 2015). As a consequence, the research question consist in finding if there are some correlations between market capitalization, enterprise value, brand value and corporate reputation.

3. DATA AND RESULTS

The samples are companies that are ranked into: 2017 Global RepTrak 100: The World`s Most Reputable Companies; Fortune Global 500: The World`s largest companies by revenues; Forbes: The World`s Most Valuable Brands. Bloomberg, Forbes, Fortune and RepTrak have been used in order to collect data. Market capitalization and enterprise value were collected form Bloomberg on 1 December 2017. Form 100 World`s Most Reputable Companies we selected only 64, those for which we found at least 3 variables (Appendix 1).

Variables:

1. Market capitalization (MC): the market value of a company`s outstanding shares. It is calculated by multiplying a company's shares outstanding by the current market price of one share (investopedia).
2. Enterprise value (EV): is a figure that theoretically represents the entire cost of a company if you, or some other investor, were to acquire it lock, stock, and barrel (Kennon, 2018).
3. Brand value (BV): The expected discounted cash flow generated by the brand in year t (Steenkamp, 2014). Forbes values brands on their financial merits instead of consumer surveys.
4. Reputational Trak (RT): measures a company's ability to deliver on stakeholder expectations across the 7 key rational dimensions of reputation, such as: product and services; innovation; workplace; governance; citizenship; leadership; performance (Global RepTrak, 2017).

Table 1 presets Descriptive statistic for analyzed variables.

Table 1: Descriptive Statistics (SPSS computation)

	N	Minimum	Maximum	Mean	Std. Deviation
Market capitalization	64	5.660	870.163	139.17473	171.263252
Enterprise value	64	6.640	716.948	140.75639	149.665128
Brand value	51	6.9	170.0	24.927	28.4994
Reputational Trak	68	64.73	80.38	73.2957	3.34406
Valid N (listwise)	47				

Based on literature review and considering the research question if there are some relations between market capitalization, enterprise value, brand value and reputational trak, we formulate some hypotheses:

H_{1a}: There is a positive link between market capitalization and enterprise value
H_{1b}: There is a positive link between market capitalization and brand value
H_{1c}: There is a positive link between market capitalization and reputational trak
H_{1d}: There is a positive link between enterprise value and brand value
H_{1e}: There is a positive link between enterprise value and reputational trak
H_{1f}: There is a positive link between brand value and reputational trak

Table 2 provides the Pearson correlation for all variables that we used to answer to the research question.

Table 2: Correlations (SPSS computation)

		Market capitalization	Enterprise value	Brand value	Reputational Trak
Market capitalization	Pearson Correlation	1	.915**	.896**	.310*
	Sig. (2-tailed)		.000	.000	.013
	N	64	64	47	64
Enterprise value	Pearson Correlation	.915**	1	.851**	.250*
	Sig. (2-tailed)	.000		.000	.047
	N	64	64	47	64
Brand value	Pearson Correlation	.896**	.851**	1	.211
	Sig. (2-tailed)	.000	.000		.137
	N	47	47	51	51
Reputational Trak	Pearson Correlation	.310*	.250*	.211	1
	Sig. (2-tailed)	.013	.047	.137	
	N	64	64	51	68

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

According to the Table 2, considering all 64 analyzed companies, there are 5 significant positive/direct correlations between variables for 6 possible, such as:

- Very strong correlation between market capitalization and enterprise value; the level of correlation is 0.915 with a high level of confidence of 99%;
- Very strong correlation between market capitalization and brand value; the level of correlation is 0.896 with a high level of confidence of 99%;
- Very strong correlation between enterprise value and brand value; the level of correlation is 0.851 with a high level of confidence of 99%;
- Weak correlation between enterprise value and reputational Trak; the level of correlation is 0.250 with a high level of confidence of 95%;
- Medium correlation between market capitalization and reputational Trak; the level of correlation is 0.310 with a high level of confidence of 95%;

Considering the Pearson correlation results with the given level of signification, the hypotheses H_{1a} to H_{1e} are valid. The H_{1f} hypothesis is rejected. There is no correlation between brand value and reputational trak, even if they influence each other.

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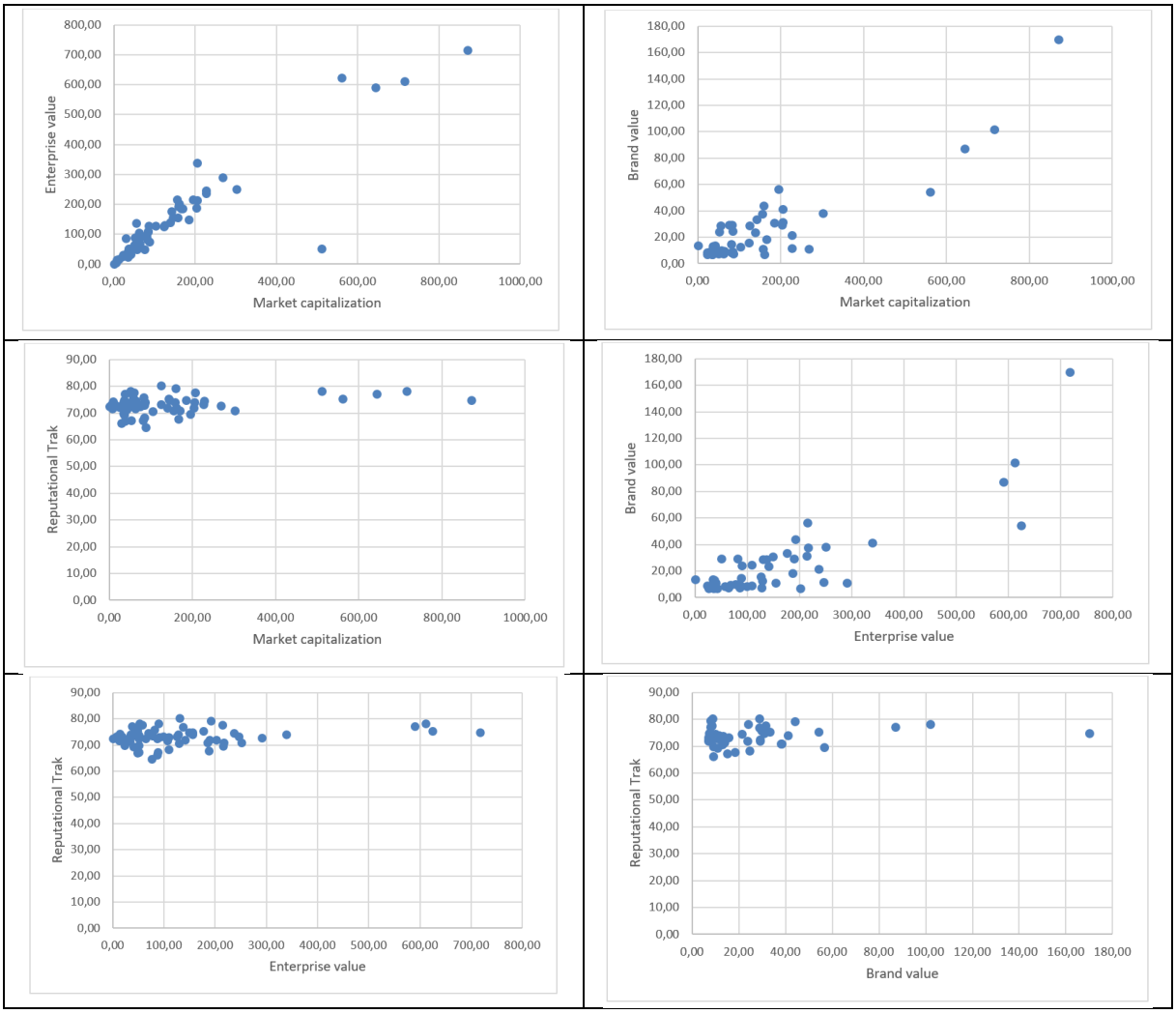

Figure 4: The correlations between market capitalization, enterprise value, brand value and corporate reputation

If we analyze the Figures 4 and 5, it can be observed, once more, the direct and positive correlation between the variables. The companies with a high market capitalization have high enterprise and brand value like Apple, Alphabet, Microsoft or Amazon. These companies have market capitalization and enterprise value over 500 billion USD, while de average is about 139 or 140 billion. As regarding the brand value, the situation is the same. The rest of the analyzed companies can be grouped in a single group. A cluster analysis has been conducted in order identify groups number (Table 3). In terms of corporate reputation, Rolex and Lego take the first two position. However, the results of Reputation Trak are very appropriate, with a mean of 73.29 and a standard deviation of 3.34 points.

Table 3: Cluster analysis (SPSS computation)

3.1. Final Cluster Centers

	Cluster	
	1	2
Enterprise value	123.261	635.642
Brand value	18.9	103.2
Reputational Trak	73.14	76.40
Market capitalization	107.933	697.027

3.2.Number of Cases in each Cluster

Cluster	1	44.000
	2	4.000
Valid		48.000
Missing		20.000

Our findings are supported also by previous studies and research conducted by Dowling (2006), Berger et al. (2006), Servaes and Tamayo (2013), Cao et al. (2015), Lopez-Perez, Melero and Javier Sese (2017).

4. CONCLUSIONS

As never before, corporate reputation represents an important factor for the decision making process whether is about customers, employees, shareholders, investors, suppliers or society. Customers are interested in high quality products and services, employees want to work for the best and most admired companies, shareholders expect high rates of return and a growing level of profitability, and the society wants from a company to be a good citizen. A successful company manage and fulfill all the stakeholders' expectations beyond "halo" effects. The focus of this study was on correlations between market capitalization, enterprise value, brand value and corporate reputation based on extended literature review and findings. The main results of the paper reveal significantly, strong and positive correlations between market capitalization, enterprise and brand value. The analyzed variable have divided the companies into 2 clusters. First one, only with 4 companies, includes the most globally known companies like Apple, Google, Microsoft and Amazon, and, the second one, that includes the other analyzed companies, also very well-known, like Coca-Cola, Lego, Rolex, Samsung, Volkswagen, LVMH, or Procter&Gamble. In summary, the study offers strong evidence, both theoretical and empirical, that market capitalization, enterprise value, brand value and corporate reputation are interconnected and leverage each other.

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APPENDIX

Company	Market capitalization	Enterprise value	Brand value	Reputational Trak
INTEL CORP	205.69	213.76	31.40	77.74
ALPHABET INC-CL A	714.91	611.46	101.80	78.22
MICROSOFT CORP	642.93	589.94	87.00	77.12
VISA INC-CLASS A SHARES	227.59	236.12	21.40	74.54
ORACLE CORP	202.48	189.28	29.20	71.90
MASTERCARD INC - A	157.05	155.12	11.30	74.12
INTL BUSINESS MACHINES CORP	142.16	176.40	33.30	75.29
SAP SE	138.64	140.85	23.80	71.86
NINTENDO CO LTD	57.03	48.61	na	75.72
EBAY INC	35.91	39.88	10.90	69.30
APPLE INC	870.16	716.95	170.00	74.94
SAMSUNG ELECTRONICS CO LTD	301.78	250.90	38.20	70.98
CISCO SYSTEMS INC	185.29	149.62	30.70	74.72
CANON INC	510.56	52.47	na	78.28
HITACHI LTD	35.91	51.00	na	69.95
HP INC	35.79	36.62	13.20	73.73
TOYOTA MOTOR CORP	204.76	339.39	41.10	73.98
VOLKSWAGEN AG-PREF	87.77	75.84	na	64.73
DAIMLER AG-REGISTERED SHARES	74.88	50.21	29.20	72.52
BAYERISCHE MOTOREN WERKE AG	55.31	136.88	28.70	76.93
GENERAL MOTORS CO	52.54	50.88	na	67.28
HONDA MOTOR CO LTD	50.99	89.02	24.00	78.13
FORD MOTOR CO	42.124	33.79	13.80	71.42
NISSAN MOTOR CO LTD	34.528	23.44	9.00	69.95
NIKE INC -CL B	83.146	81.71	29.60	75.74
LVMH MOET HENNESSY LOUIS VUI	124.871	130.44	28.80	80.16
ADIDAS AG	37.052	36.97	7.90	77.27
KRAFT HEINZ CO/THE	83.422	109.08	9.20	72.90
HEINEKEN NV	49.622	63.52	7.70	72.41
ESTEE LAUDER COMPANIES-CL A	38.53	40.34	na	73.71
SONY CORP	58.596	57.38	8.30	77.74
COCA-COLA CO/THE	193.86	215.64	56.40	69.53
PEPSICO INC	166.163	187.21	18.20	67.71
NESTLE SA-REG	268.409	290.46	11.20	72.63
DANONE	56.789	77.62	10.20	73.54
UNILEVER PLC	168.842	185.29	na	70.84
PROCTER & GAMBLE CO/THE	226.753	246.55	11.60	73.30
L'OREAL	123.99	125.69	15.60	73.18
COLGATE-PALMOLIVE CO	63.232	68.75	9.80	74.64
AMAZON	560.10	624.22	54.10	75.33
DISNEY	158.64	191.99	43.90	79.19
GENERAL ELECTRIC	155.06	216.80	37.90	70.98
AMERICAN EXPRESS	84.94	109.15	24.50	68.36
STARBUCKS	81.56	88.41	14.90	67.36
IKEA	na	na	13.50	72.46
UPS	103.67	129.16	12.90	70.61
SIEMENS	na	na	11.50	73.14
HYUNDAI	29.04	86.50	8.90	66.12
ROLEX	na	na	8.70	80.38
NETFLIX	80.89	98.54	8.50	73.35
KELLOGG„S	23.34	30.96	8.40	72.48
LEGO	na	na	7.90	79.46
FEDEX	62.33	86.16	7.50	72.59
CATERPILLAR	85.38	127.79	7.50	74.06
PHILIPS	34.92	42.23	7.20	74.94
BOEING	160.47	201.88	7.10	72.03
HERSHEY	23.73	25.94	7.00	72.28
PANASONIC	34.21	35.70	6.90	73.38
ESTEE LAUDER COMANIES	47.16	50.74	na	73.71
3M	144.96	156.07	na	74.82
HUGO BOSS	5.66	6.64	na	73.27
WHIRLPOOL	12.04	17.01	na	73.30
GOODYEAR	8.12	14.04	na	74.40
BRIDGESTONE	33.54	35.54	na	74.12
AIRBUS	60.10	91.10	na	72.96
XEROX	7.67	12.34	na	71.67
DELL	62.28	106.02	na	71.60
DELTA AIR LINES	37.32	48.42	na	67.11

DYNAMIC STRATEGIES FOR ECONOMIC AND ECOLOGICAL GLOCAL CLUSTERING

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ABSTRACT
In the context of the new post-modern management, the trans-economic concept of the "second curve" is presented as a "branching" curve in relation to the biosphere cycles (the general bio-geo-chemical and the special carbon ones) as the engines of the bio-economy, contributing to the emerging econo-ecology by glocal (global-local) clustering research direction. In this context the second branching curve appears as a component of a closed-open cycle of five "left and right" links. They correspond to the five competitive forces identified by Michael Porter as being at the core of strategic management and allow the re-designing (strategically) the timely - sustainable management in the bio-econo clustering of the dynamical competitive advantage.
Keywords: *the second (Handy's) curve, sigma-alpha pulses, Gummesson cycles, cycles of biosphere, Porter forces*

1. INTRODUCTION

Ronald Reagen once said that "every generation is at a generation distance from losing its freedom!"; and before him Thomas Jefersson warned his contemporaries that "a generation must be soldiers, so that the next generation could be farmers, so the next generation should be poets!" Where are we now? In what generation? In which pre-generation? Quite recently, Charles Handy (2015) argued convincingly that we are indeed on a growing curve: we see progress - but also the consumption of resources, goods and services; we see the alienation of the self, while increasing the connectivity; we see the growth in overlapping markets - but also in their turbulence; we see the increase in state regulations - but also in its inability to distribute (in a liberal sense) and re-distribute (in a social sense) the wealth of the nation and the welfare; we see the increased opportunities - but also the increased risks; we see the increasing climatic indicators - but also the incidence of extreme phenomena; we see the increase of stock market indices - but also of the virtual transactions; we see the increase of the trading rates - but also the lack of available cash (as a reflection of the valorization of the goods created, actually circulating); we see the population growth - but also the spread of diseases (in a variety of forms, pathogenic and resistant, as well as the speed of spreading); we see the increasing consumption - but also the unsustainable credit (or refinancing continuously), etc.. The "epistemological solution" may be formulated in terms of the second curve as branching allowing dynamic clustering. This means the voluntary acceptance of a partial decline, of a controlled brake of inputs, of consumption, of production, of desires and extreme behavior, of the win-lose game, - all in favor of a sustainable re-launching, by a strategic (long-term) win-win game in terms of the global-local (GLOCAL) relationship with the environment. As a consequence, the gain at individual, organization, company, nation level should be also

reflected in the gain in “breathing” of the environmental basic elements – WATER,AIR, SOIL, COAL - fossil or wooden) so that the next generation would have its vital space. To this aim, here at epistemologically level, the second curve’s cyclicality is employed as the key to sustainable eco-ecology; this way, the "periphery becomes the center"; it may reopen to a new cycle, either inside - or outside of the first cycle, so filling the entirely available econo-space! In this regard, the present communication has the following structure: Section 2 introduces SIGMA-ALFA constellation (clustering) by the second curve post-modern dynamic strategy: the so called Gummesson (amoebas) clusters are advanced by the "left-handed" coupling of five-Handy eco-cycles with the sigma-alpha (branched) pulses; Section 3 is two-folding the cognitive two-folded analysis of timely and sustainable bio-economic clustering cycles, namely by: i) Bio-Geo-Chemical General Cycle: in the Biosphere based on the sigma-alpha continuous “left” networking; and by ii) The Carbon Special Cycle in the Biosphere based on the sigma-alpha "right-like" proxy-linking; Section 4 discusses the clustering competitiveness by ecolo-cycles: balancing the dynamics of the competitive respecting the sustainable-and-renewable advantage(s) based on Porter forces in the modern model of competitiveness; Conclusions are oriented towards coding-de-coding the Postmodern Strategic Management while shifting the “welfare space filling” from 2D (data-driving) to 3D (question-driving) dynamic perspectives.

2. SIGMA-ALFA CONSTELLATION (CLUSTERING)

Continuity, the second curve, cyclicality – these are the keys to sustainable eco-ecology (Elkington 2001); concepts that should be included in any mission, vision, strategic and operational objectives of post-modern management, in which the "periphery becomes the center" - and reopens to a new cycle, either inside - or outside of the first cycle, towards covering the entire available space!

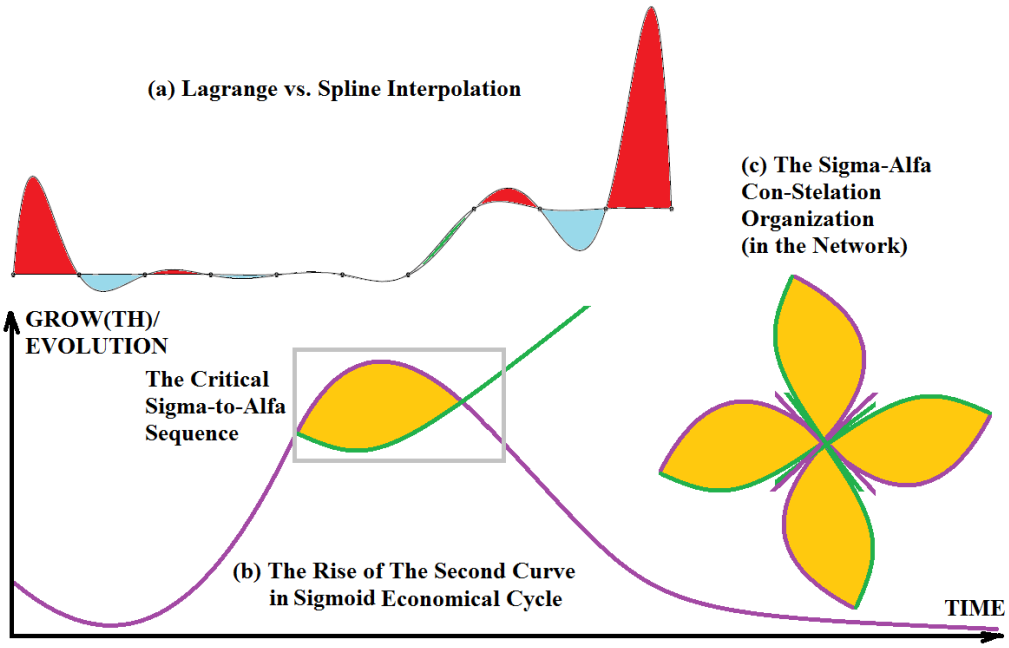

Figure 1. The sigmoid Lagrange curve (a), then corrected by spline (oscillatory) interpolation allowing the emergence of the alpha pulses (b); followed by their constellation as clustering of sigma-to-alpha sequences (c).

Figure 1 outlines these ideas in a systematic way: (a) Lagrange curves, although continuous, only records small oscillations with a sigmoid increase in maturity and a stationary post-evolution ... an already unrealistic picture of any evolutionary curves. Instead, the overlapping "spline" curves present oscillations of varying amplitudes, similar to "characteristic pulses",

much more appropriate for modeling a dynamic reality, specific to strategic management. It fits with the complexity theory, or what is recently predicted as a "new (quantum) economy," in which the undulatory (oscillating, diffuse, dispersed, weak signal) character is the one that "counts," amplifies and shapes-reshapes realities, markets, benefits, life itself. **(b)** The "oscillatory" spline curve is identified from the first curve as being characteristic to the cycle of a product; the result: from the corrected sigmoid curve to the second curve, an "alpha" branching pulse type is obtained. From this moment onward we may conceive the "sigma-alpha" branching type behavior: from the long sigma-"open cycle" curve - to re-launching on a new branching alpha pulse; **(c)** We are now able to forming a "sigma-alpha pulse constellation" as a "flower populating" the "market field" with new opportunities, new seeds of progress. This way we advanced the re-definition of the progress by combining the existential (individual), organizational, economical, social, and ecological within a whole ("holonic") cluster, here viewed as a network of closing cycle of "sigma-alpha pulses".

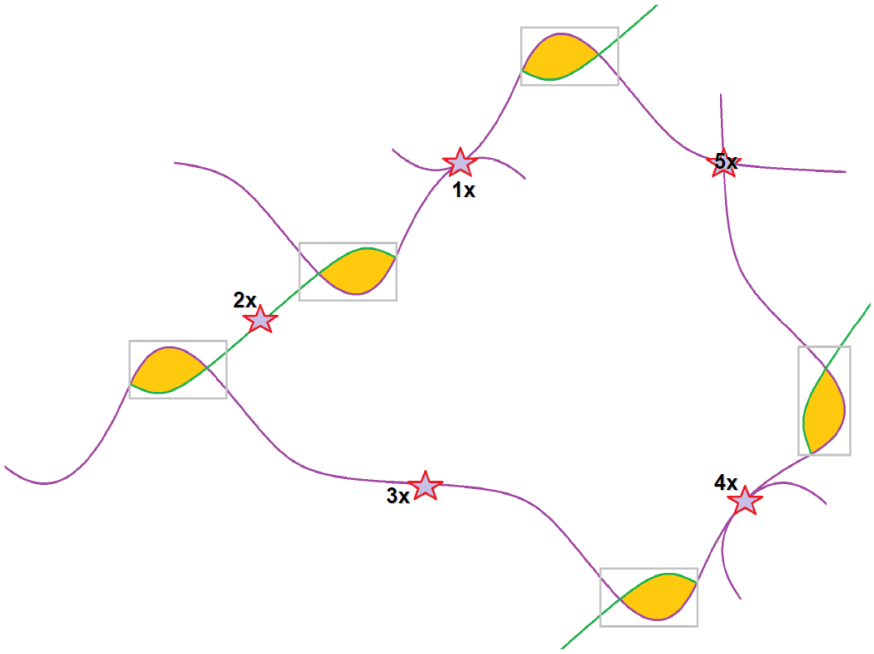

Figure 2. The Gummesson (amoeba) glocal clustering generated by the "left-handed" coupling of five Handy eco-cycles with branching of the sigma-alpha pulses as identified in Figure 1b.

However, the "sigma-alpha" pulses are coupled in a cyclical sequence so building a cluster of them, in a similar construct as are total relationships in the relational strategic marketing, while recalling the Gummesson (2002) "amoeba" types; for this reason, the present clustering we will called as the Gummesson clustering mode, Figures 2 and 3. Noticeably, in this approach of clustering by cycling the sigma-alpha (branching) sequences, two distinct forms may appear:

- The left (levorotatory) clustering by cycling (Figure 2) of five rows of primary-secondary (i.e. the branching of Handy type curves) are inflected, some overlapping the primary curves and only one being linked by the secondary-branched curves. The last coupling (the 5x point in Figure 2) is resulting in a "critical closure", i.e. by asymptotic intersection and not by annexation; it thus corresponds with a divergent junction at the asymptotic level of the first, long declining Handy curves.
- The dextrorotatory clustering by cycling (Figure 3), uses again five Handy branching curves (once independent, in competition entities, now cooperating in a circular coopetition, practicing the inter-dependence of local-to-global clustering cycle. Also here, there appears

a "critical point (4x in Figure 3)" being characteristic to a "turbulent" intersection of branches, so the glocal (i.e. by opening the local to global) curve is emerging from the sigma-alpha pulses.

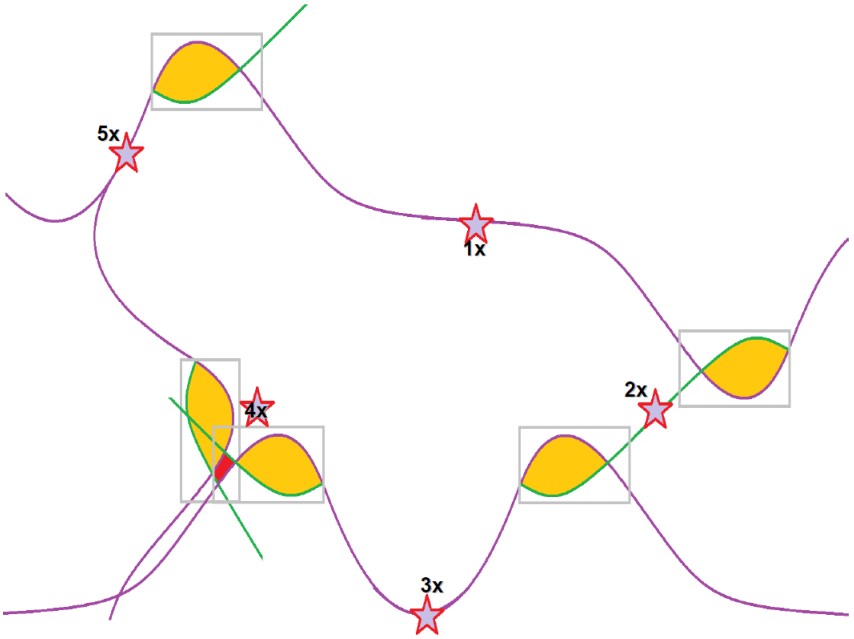

Figure 3. The Gummesson (amoeba) glocal clustering by the "right-handed" coupling of five Handy -eco-cycles with the sigma-alpha branching pulses as identified in Figure 1b.

Thus, the concept of the second curve as branching allows interesting dynamical extensions, namely:

- Identification of "sigma-alpha" pulses as being creative, re-generative;
- Coupling the Handy branching curves into clusters by "big cycles" through levorotatory and dextrorotatory junctions;
- Differentiating the "sigma-alpha" levorotatory from the dextrorotatory pulse clustering cycles (here called also as amoeba or Gummesson type of clustering cycles);
- Nevertheless, new challenges are opened in the present context, here to be projected on the glocal bio-economy paradigm:
- Can there be ecological-ecological correspondence for the present identified Gummesson clustering cycles, including Handy branching cycles, specifically differentiated on their levorotatory and dextrorotatory nature?
- What can we learn at the level of bio-economy for competition, for each of the Handy branching cycles coupled levorotatory and dextrorotatory in the Gummesson glocal clustering cycles?

The following sections seek to answer these questions, respectively.

3. TIMELY AND SUSTAINABLE BIO-ECONOMICAL CLUSTERING CYCLES

Management, especially THE strategic management, is essentially a *delegation* (Covey 2004):

- Time delegation: resolves efficiently through accelerated time gain (hubs, clusters, accelerators and business incubators) or relatively extended over time (public-private partnership, ecological clusters, NGOs, entrepreneurship, SMEs , etc.);

- Delegation of people: effectively solves problems of organizations, project management, public management, multinationals, etc.

We could (or should) add here the ecological delegation: circulating the resources of products in sub-products and derivatives, re-circulating as "second/branching curve" the products, re-generating the resources through re-use, re-approaching “the natural breath”, i.e. until the Soil, Air, and Water also re-gain its specific re-spiration (e.g. the eminent example of CO2-related carbon dioxide glocal circulation and re-circulation). The reconciliation between the ecological delegation and the two managerial delegations mentioned above generates, respectively, the two specializations for the Gummesson levorotatory and dextrorotatory clustering cycles for close-circulating the Handy branching curves.

3.1. The Timley (General) Bio-Geo-Chemical Clustering Cycle

The reconciliation between ecological delegation and time delegation (efficiency) - generates the timely Gummesson clustering cycle (Figure 4), with the following features:

- It abstracts from the general bio-geo-chemical cycle (Balzani & Venturi 2014);
- It corresponds to the levorotatory Gummesson cycle in Figure 2;

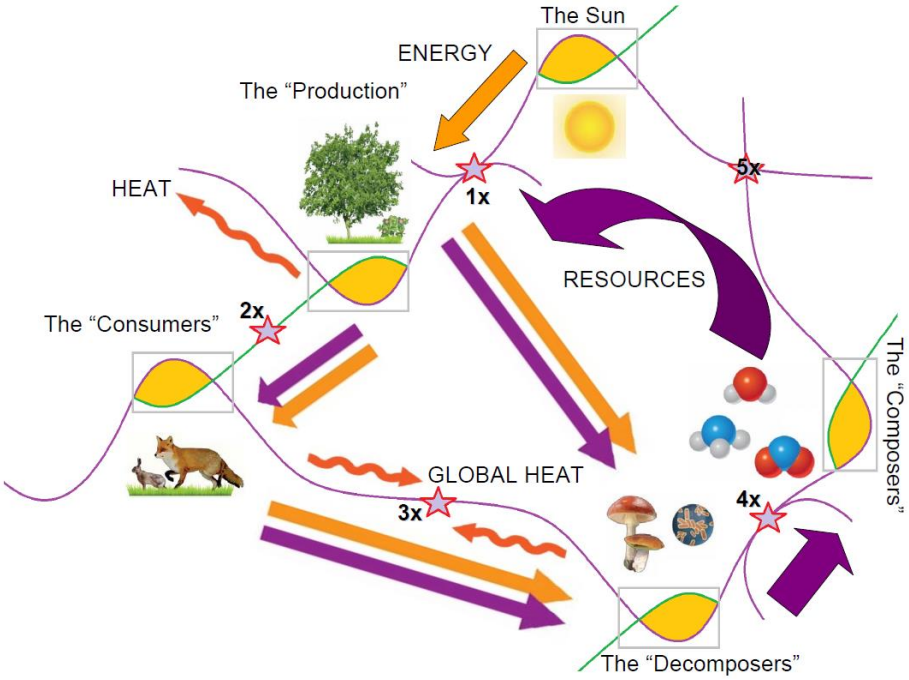

Figure 4. The Bio-economic cycle based on the sigma-alpha branching, producing the “the left-handed” clustering pattern, rooting in the Figure 2.

- It situates resources (inorganic substances / products and solar energy / production-as process, including know-how and dynamic capabilities – viz. time) in opposition to Consumers. Production as commodity is launched in the market and not directly ingested at the final consumer, but passed through the "green" filter of the transformation of inorganic / mineral resources / products into the organic-unassailable ones, by the effect of photosynthesis. Through strategic management, the heat release to final consumption overcharges the biosphere with global warming; however, global warming can be used "intelligently" by de-decomposing the post-consumption products into primordial elements – so resulting the by-products prepared to enter a new bio-eco-cycle through a tailor-made

re-composition, r-designing, and re-consumption at "the second run the Gummesson clustering glocal cycle";

- The five points (1x, 2x, 3x, 4x, 5x) of intersection and inflection are characterized in the levorotatory sense, starting from the Sun ("the Capital") apex, as following: the energy point (1x) is the in-out symmetrical inflection, the continuous "2x" point belongs to the consumers which meet and communicate through habits, culture, but also globally and in a neo-standardized way (viz. McDonalds, IKEA, Apps, Facebook, etc.); the continuous point (3x) of global warming appears as a consequence of the increased consumption, but also in conjunction with the release of waste into the environment; from it, the fourth point (4x) becomes the meta-stable point of the balance shift to the decomposition of the waste in order to re-compose it on a new cycle against the over-dimensioned waste composition; the last issue is faced by the final critical point (5x) through the dynamic recomposing with the increase of invested "Capital" (here the Sun as "know-how" of any kind) and knowledge management towards a new chain clustering the energy balance (between the capital, consumption, and satisfaction), - all in all aiming the timely progress.

3.2. The Sustanaible (Special) Carbon Clustering Cycle

The reconciliation between ecological and anthropogenic (effectiveness) delegation - generates the sustainable Gummesson clustering cycle (Figure 5), with the following features:

- Abstracts from the special carbon cycle (Balzani & Venturi 2014);
- Corresponds to the Gummesson dextrorotatory cycle of Figure 3;
- Separates airflows (the virtual-, quantum-, wave- economy into virtual and strategic alliances, possibly oligopolies and cartels) from the soil dynamics (characterized by logistics, marketing, commerce, tangibility, immediate consumption, person oriented, holding economy, pseudo-clusters in the sense of non-flattening total organizational, hierarchies, monopole culture, price/production competition, tangible and immediate. It features breathing by physical condensation and evaporation, then economically projected into the business- branding, rebranding, politics, advertising, media, then oriented to social debate and consultation, and the democracy in the broad sense; it thus provides the connection between water (bio-physically represented by phytoplankton/seaweed see reserves on one hand, and by resources and stocks in economical hand) and the sky (eventually epistemologically projected onto common market, free and global circulating capital, international investments, funds, macro loans). Such connection ensures an economic and ecological balance through anthropogenic intervention and contribution (by human regulation, etc.) in a sustainable way (i.e. susceptible to be changed by the next generation);
- On the other side, the five points (1x, 2x, 3x, 4x, 5x) of intersection and inflection (Figure 5) are here specific to the dextrorotatory "doctrine". It starts from the "Heaven-Capital Market" apex and proceeds as follows: the combustion point (1x) assures the in-out symmetrical inflection; the "2x" continuous anthropogenic point practices the stigmergies, e.g. the memory footprint, the databases collections, the warehouse mining; it the contributes to various personalized products, beyond the mass production, but which on a global scale may form the network of mega-gadgets, possibly interconnected, and thus decomposing (fragmenting) the reality, products and consumption in myriads of sorts and hypostases, ultimately cumulated in anthropogenic knowledge, even with the risk of "heating up" the atmosphere of supply and demand for products; so the product substitution force is generated; the continuous point (3x) of the air-soil phase transition, may represent the wave-corpuscular duality at the bio-economic level, but which can also be dually projected into inorganic or organic consumption (so activating the potential of the economical couples) as are the supplier and customer, the supply and demand markets,

respectively; as a consequence, the critical point (4x) and rupture of the glocal market may release the crises and social misunderstandings, the over-sizing economy, so the raising collective consciousness regarding relations, and trust in the glocal system of the free market, the (meta)organizations, eventually the state and the nations; finally it may appear the point (5x) of the new beginning by redefining the market, its capital market, and regulations, the trading rules (costs) and corporate mission, the political and trans-social governance (viz. UN, USA, European Union, Euro-Asia, etc.).

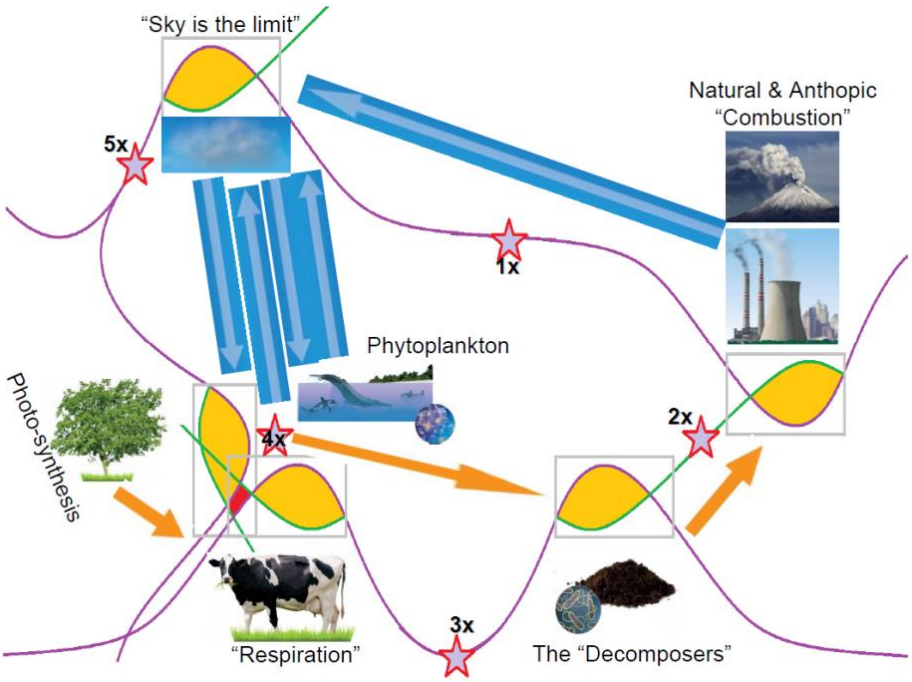

Figure 5. The Carbon Cycle based on the sigma-alpha branching to the "right" clustering pattern of Figure 3.

What remains is to explore to which extent the Gummesson levorotatory and dextrorotatory clustering cycles may change the way to perceive competition itself in a free market, in a bio-economic, transferred to ecological-ecological dynamics.

4. CLUSTERING COMPETITIVENESS BY ECO-CYCLING

The dynamics of competiveness may be best understood by the fundamental bio-economic connection, given for instance by:

- The egoistic gene (Dawkins 1976): as the fight for survival in biology vs. the (fierce) competition in the economy;
- or the cultural approach of the economy at organizational and societal, national and racial levels (Hofstede et al., 2010);
- of the chrysalis economy as a dynamic model of exchange and "rebirth" (Elkington 2001).

On the clustering level, it is naturally possible to reinterpret the competitiveness model through competitive forces of Porter type (2008), combined with the Gummesson 2D sigma-alpha cycles as outlined in the previous section. Accordingly, the characteristics and the mode of action (the strategic deployment) of the Porter forces of competition may be reconsidered at the level of sustainable bio-economy in a Gummesson levorotatory clustering cycle, see Figure 6, with the following interpretation:

- three Porter forces are identified from the "sigma-alpha" branching pulses: one is outside of the Gummesson cycle; the apex of the clustering cycle is considered in the area of competitive rivalry, i.e. shifted from the Porter "central" role; the same for the forces from suppliers 'negotiating power (the power supply) and that of the buyers (the buyer power); The remaining two Porter forces appear at the Handy's cycles that opposites the economic output to the societal consumers: they are the threats from new entrants/competitors (threat of new entry) with the strength of substitution products or services (threat of substitution); they assure the inside balance of the Gummesson clustering cycle.
- The critical point (5x) of the dynamic re-composition re-conciliates with the capital growth so appearing in the Figure 6 in the area of resource competition, where the competitive rivalry is amortized by the power of suppliers' action. This point also guides and re-orients the competitive advantage in the area of resources and of the (dynamic) capacity to manage them towards a competitive economy and timely biodiversity in an integrated bio-economy.
- In short, it can be said that for the timely Gummesson cycle (left, levorotatory), the "north pole" of competitive advantage in the market is oriented to the right-side, that is to the resource economy in the general clustering cycle of the bio-economic sphere.

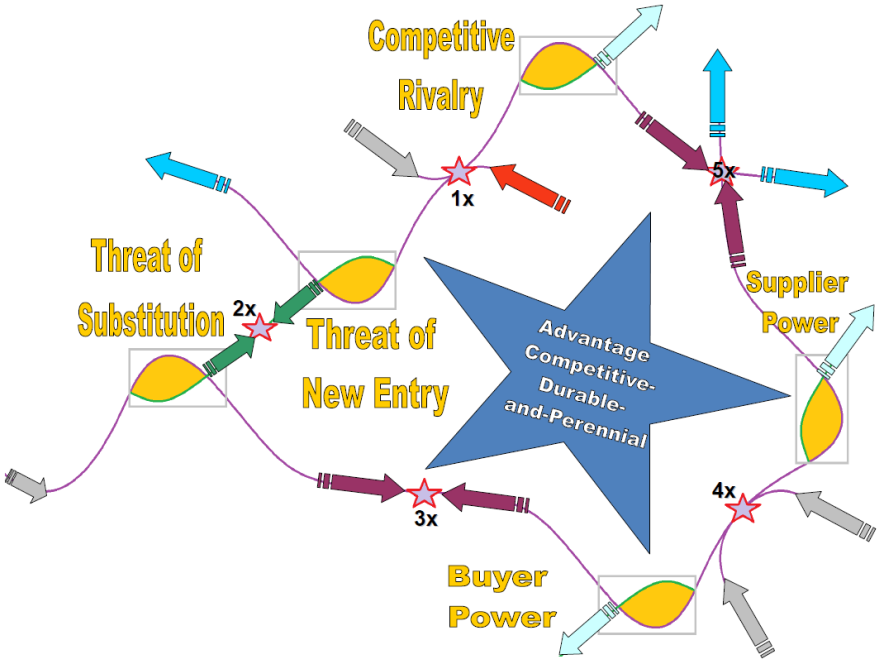

Figure 6. The timely dynamics of the balance of the competitive advantage based on Porter forces in the modern model of competitiveness - here projected on the post-modern model of the sigma-alpha network continuous "to the left" pattern of Figure 2.

Similarly, we analyze the case of sustainable bio-economy, based on the implementation the special Carbon Cycle of Figure 5, resulting in the Dynamic Porter Dynamic of Figure 7:

- the emerging trends of the "outside" branches of the Handy second curves for the supply and demand forces are maintained; equally, the tendency in balancing the power of substitution of products and services with the influence of competitors of new entrants is firmly manifested; the effect is in maintaining the apex of the Gummesson dextrorotatory clustering cycle towards the privileged position in the market (rivalry in the field) offsetting the exit of the sigma-alpha pulse (in between of the points 5x and 1x) outside the Gummesson cycle; this means that this type of clustering dynamics is "anytime ready for "meta-clustering", potentially able to create (by a blue ocean), or to seize (within a red

ocean) new markets, new sources of capital, in a “spiral” tendency to “fill in” the entirely bio-economic sphere.

- Besides, the critical point (4x) of the "closure that opens" in this type of clustering cycle is located in the area of demand and supply; this point is apparently manifested as "a hiatus" (e.g. of economic, knowledge, cultural/societal gap), while can also be turned into a "strategic move" by filled it with a "new business" according with the entrepreneurial principle "if you find a gap in the market, make a market in the gap". On the other hand, the same point can be viewed as an imbalance, i.e. when emerging forces are manifested as insurgent at the organizational level, or for the financial investment, thus inducing the economic "turbulence/hazard". From this point of view, the sustainable attribute is fragile, with a potential risk of "breaking" the Gummesson dextrorotatory clustering cycle, from where the eventually need for the third way of clustering dynamics!

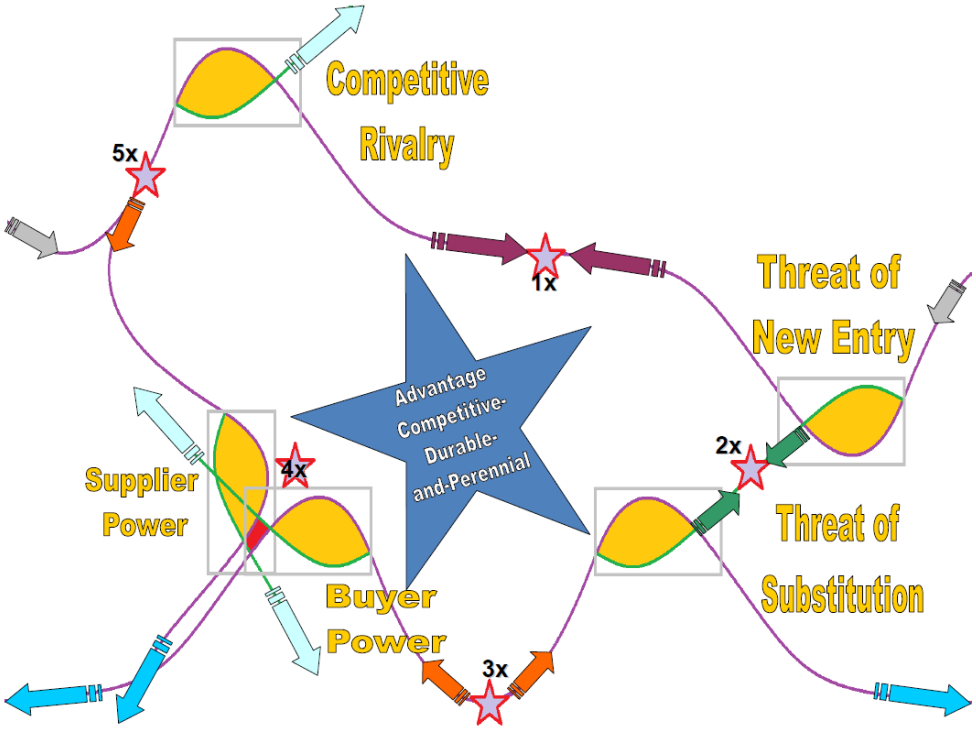

Figure 7. The sustainable dynamics of the Competitive Advantage as given by the Porter Forces manifested though the sigma-alpha branching pulses within the "right-handed" cluster by cycling, as rooted in the Figure 3.

Nevertheless, it can be said that for the sustainable Gummesson clustering cycle (right, dextrorotatory) the "northern pole" of the competitive advantage in the market (both as a source of profit, by re-cycling, re-inventing, re-energizing – including the negative pressure, as the wick for a potential crisis) is shifted to the left, i.e. the competition going to coopetition on the market; it is a synergetic key to the dynamically sustainable clustering strategy!

5. CONCLUSION

After all, the second curve may correspond to the "branching" in the life of a product, resulted through environmentally integrated economical mechanisms into a glocal (global-to-local) societal progress by administration of the Earth resources. The Handy’s second curves generate the "sigma-alpha" pulses first, while by their further cyclic coupling in looping-type chains leave with the so called Gummesson clustering cycles, working either as timely levorotatory and sustainable dextrorotatory!

This novel picture in strategic management by clustering, gives a coherent image of the conceptual analysis of the integrated ecolo-economy; it has as a direct consequence the redefining of competition and of its forces in a bio-economic metric, so giving the coopetition dynamics to the model of Michael Porter's five forces. It can be said that the present communication originally advances the synergic Handy-Gummesson-Porter bio-economic model, equally to be applied on organizations, business models, macro-economies, and strategic management at large. However, we may identify a limitation of this model too: epistemologically, it generates a strategic management code of the type "1a-2-5-1b" with a cycling repetition: "1a" comes from the first sigmoid curve of a product; "2" stays for the second curve and "sigma-alpha" branching pulse it generates; "5" represents the "sigma-alpha" branched pulses that can be chained in a cycle of a Gummesson clustering, either to the right or left closing; "1b" assures that the Gummesson clustering cycles are "holonic", i.e. can be seen "as ones" (integrally integrated)! At a higher level of comprehension, the chaining of such cycles in a glocal economy can generate networks (let's call them Handy-Gummesson-Porter codes), analogue with DNA chains in organisms, in open organizations, on the dynamic markets, and ultimately in a self-determining bio-economy. And yet ... with the Cycle in Cycles model, in an infinite progression there are always "voids inside"; see, for example, the dextrorotatory open critical point (4x) in the Figure 7, or the point (5x) of resources through the decline in discontinuous closure on the levorotatory curves in Figure 6. The solution to this dilemma? As a working premise - the 2D curve-specific paradigm must be overcome! For instance, one can augmenting the presnt timely and sustainable model of clustering by cycling with the nano-technology dynamics; it equivalents with rising of the 2D (the in-plane data driving) approach to the 3D (the in-space question driving) perspective to deal complexly with the complex problems of the new economy, but not complicating them unnecessarily. Accordingly, the total strategic (compact) management code eventually becomes "1-2-3-8-∞"! But this is a different study ... and it is presenting elsewhere (Putz 2018; Putz & Petrisor 2019).

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RESEARCH OF THE ROLE OF STATE PROCUREMENTS IN RUSSIA: EXAMPLE OF THE RADIO-ELECTRONIC INDUSTRY[1]

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ABSTRACT

In the last decades, the subject of state procurements became an object of economic research. Interest in this subject is connected with the fact that state procurements perform various functions including satisfaction of the state needs by the involvement of private corporations and stimulation of scientific and technical progress through financing of production of those goods and services the production of which is not profitable for private companies. In this article we analyze various price mechanisms of state and fixed price contracts as the most common form of the state contract. Also, we study the influence of state contracts on the indicators of radio-electronic industry in Russia. Authors come to the conclusion that, even there are many problems in the system of state procurements, positive influence of this instrument of state policy is more significant. Article is organized as follows: in the first part we give the characteristics of radio-electronic industry in Russia, including the production dynamics and the state programs and projects aimed at the development of this sector production; in the second part we provide the typology of state contracts, including fixed price and "costs plus" contracts, and data on cost of the signed contracts on chips. In the conclusion we provide main results and suggestions for further researches.

Keywords: State procurements, Russia, fixed price contracts, costs plus, radio-electronic industry, export, import

1. INTRODUTION

During the last years the issue of state procurements is gaining greater attention in the economic researches. There is an opinion that state procurements help public sector to overcome the borders of capital accumulation, its concentration and centralization, to function at reduced rates of profit and not to depend on market conditions. In this regard, the role of the state is in the creation of the most capital-intensive and least profitable industries and plants with long investment payback period. In other words, the aim is to create those industries that private economic sector cannot develop. Individual studies are focused on the pricing mechanisms of state procurements and the forms of contract conclusion. For example, P. Bajari (2009) shows that from 1995 to 2000 44% of construction projects in Northern California were procured through negotiations whereas only 18% of projects were procured through open auctions[2]. This data shows that "costs plus" contracts are becoming the most common form of a state contract. These procurement mechanisms are common in the high-tech equipment and software delivery

[1] The research is prepared within a financial support RFBR within the scientific project № 17-30-50003 «Studying of potential of the contractual industry in the system of the state managing in the industry of Russia (on the example of the radio-electronic industry)»

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contracts. However, these contracts are not often used in the state sector with the exception of some contracts on defense procurement. There are both advantages and disadvantages in each contract type. A buyer in a fixed price contract should choose what should be procured and convey his needs to the potential suppliers. The contract should be planned including the contractual obligations and means of compensation. Accordingly, the selection mechanism by means of which the procurement contract is concluded with one of the potential contractors[3]. The implementation of the "costs plus" contracts is a difficult task because it is rather challenging to identify in advance the remuneration of a contractor. That is why this contract type is concluded not through an open auction but in the result of the negotiations[4]. Some researchers note that the excess over the costs forms the small proportion in this contract type with the exception of cases when the contractor is a company with a good reputation that proved its efficiency while performing contract work. The disadvantage of the "costs plus" contracts is in the fact that they are concluded primarily through open auctions and not in the result of negotiations. Nevertheless, this contract type is believed to be more effective when ordering new production that has not been produced before and has difficult specification[5]. In this research we are attempting to identify the role of state procurements in the development of radio-electronic industry in Russia. The results of this analysis contribute to the researches focused on the study about the potential of state contracts in the development of the certain industries in the developing economy.

2. THE DEVELOPMENT OF RADIO-ELECTRONIC INDUSTRY

Radio-electronic industry is a key one both in developed and developing countries because of the fact that its production is used to produce cars and equipment, provide medical, communication and information transmission services. That is why the development of this sector is based on the state economy sector including state programs supposing the infrastructure development, creation of the favorable investment climate and the establishment of institutional conditions. The development of radio-electronic industry is one of the priorities for Russia. In the projected social and economic development of the Russian Federation for the period up to 2030 it is noted that «presently radio-electronic production is characterized by the disadvantages that significantly limit the development of this mechanical engineering sector: insufficient level of technological development, lack of competencies in the sphere of design and production (for example, civilian application production), depreciation of primary scientific and production bases, the dependence of the production level on the deliveries of the defense and security needs production, insufficient level of the research and development results implementation into production and the absence of the qualified engineering and production specialists»[6]. Import substitution plan in radio-electronic industry was approved in Russian economy to support this branch. More than 500 goods were included in this plan: computer machines, LED, medical and laser technology and telecommunication equipment. The list of the companies that have major impact on the development of Russian economy includes 26 radio-electronic industry businesses. Capital investment flow influences the paces of industry development. The trends of this flow from 2005 to 2014 are presented in table 1.

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[6] "Projected social and economic development of the Russian Federation for the period up to 2030 " (developed by the Ministry of Economic Development of the Russian Federation).

Table 1. Capital investment in terms of funding sources.

Criterion	2005	2006	2007	2010	2013	2014
Fixed capital investment (million rubles)	15573	19177	27291	27298	59464,9	73678
Proprietory funds	10693	14330	20010	20872, 7	43121	57491
Federal budget funds	536	1654	2099	3777,7	6235	5847,1

Despite the decline in the share of state-owned legal entity in the resources of Russian radio-electronic companies there is an increase of the state contract market. This market is a necessary part of the national economy development. Data concerning state procurements shows that industry development is performed through the state contracts mechanism. In 2015 the volume of state procurements on chips amounted to 147 624 231 RUB while in 2017 there was an increase to 371 158 388.7 RUB[7]. Positive dynamics in the sphere of procurements of radio-electric industry determines the production volume growth. While in 2005 the production of devices and instruments for measuring, control, testing, navigation, management and other tasks was 219 687 389 RUB, in 2016 production volume amounted to 3 949 792 810 RUB. The same trend can be observed in the production of electro and radio elements, vacuum appliances, television, radio transmission and telecommunication equipment. By 2016 the production volume of this type of production has increased by 11 times in comparison with 2005.

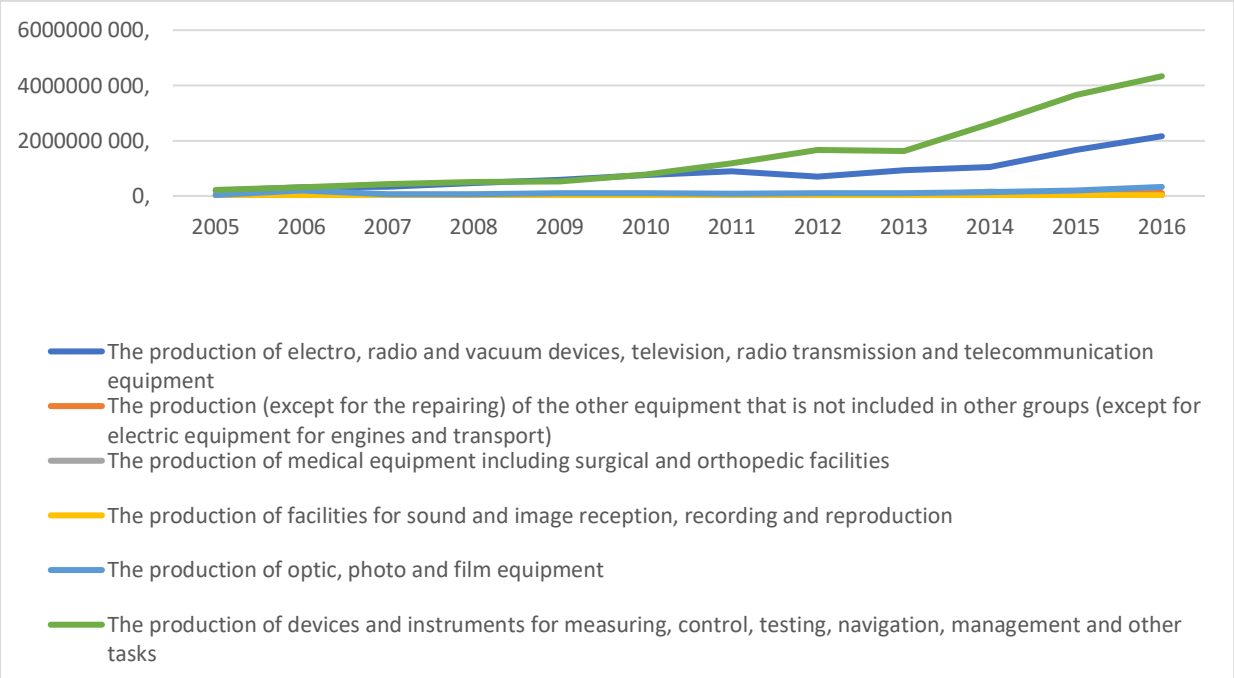

Figure 1. The trends of the overall order volume for production purchase in the certain types of economic activity in the Russian Federation in the next years, in thousand rubles.

The increase in the production volume of medical equipment is slower. This equipment includes surgical facilities, the production of optic, photo and film equipment and the appliances for sound and image reception, recording and reproduction. Nevertheless, presently radio-electronic production is characterized by the high proportion usage of the imported raw

[7] Calculated by the authors on the basis of the data from Unified information system site in the sphere of goods, works, services procurements for provision of public and municipal needs (zakupki.gov.ru).

materials. Data about the costs of the used foreign raw materials and purchased products in certain types of economic activity in 2015 and 2016 are presented in table 2. Depending on the good the share of foreign raw materials that is used in the production process ranges from 5 to 20%.

Table 2. Data about the costs of the used foreign raw materials and purchased products in certain types of economic activity in 2015 and 2016 in the Russian Federation, in thousands RUB (Calculated on the basis of the data from the Unified Interdepartmental Statistical Information System (https://www.fedstat.ru/)).

Economic activity	2015	2016
The production of electronic elements, television, radio transmission and telecommunication equipment	79 716 708,5	76 033 660,6
The production of facilities for sound and image reception, recording and reproduction	60 434 085,6	57 078 428
The production of TV receivers including video monitors and video projectors	55 021 156,8	45 765 084,9
The production of electroacoustic equipment	867 598,4	1 030 830,4
The production of medical equipment, measuring, control, management and testing tools, optic, photo and film equipment; watches	24 858 974,3	24 245 323,7
The production of medical equipment including surgical and orthopedic facilities	4 268 212,7	4 434 018,8
The production of devices and instruments for measuring, control, testing, navigation, management and other tasks	18 747 449,6	17 911 679,7
The production of the devices for measuring and regulation of technological processes	75 894,9	54 371,9
The production of optic, photo and film equipment (except for repairing)	1 749 268,1	1 821 362,3
The production of watches and other time measuring instruments	18 149	23 891
The activity connected with the usage of computer machines and information technologies	7 932 150,3	6 092 869,4
The activity concerning the creation and usage of data bases and information resources including Internet network	3 090 638,1	1 362 948,6
Data processing	342 352,7	748 936,1
The development of program software and consulting in this sphere	3 240 550,3	3 606 781,5

In the last 11 years radio-electronic industry demonstrates positive dynamics in the production volumes of certain types of production. State support plays an important role in this process.

3. STATE CONTRACTS TYPES.

The contracts with fixed price provide a firm price, for example, initial ceiling, evaluated and target price. These contracts can give the contractor the most considerable financial gain or loss. This is connected with the fact that a contractor is liable for all the costs concerning the contract implementation. That is why the initiative of the contractor to minimize the costs is a factor of profit maximization. The conditions of this contract type promote the contractor to control the costs and comply with the technological and economic indicators of the contract.

This contract type is suitable for ordering commercial goods and services in those cases when there is an opportunity to identify fair or market price of a good production or service providing before the contract conclusion. There are several methods to identify the price of a good in this contract type. Firstly, if there is a price competition in the market of related services or goods, the price can be identified by comparing similar goods prices or cost setting of these goods production at established prices. Secondly, the price can be identified if there are available analytic materials, price specifications on similar goods or services. Besides, when determining the price for this contract type the data about possible risks that can occur in the process of contract implementation is used. That is why fixed price contracts are applied for those goods and services that are already developed by the production, when technological and economic parameters of a good can be determined precisely and the costs on the production of the good are set through the price of similar goods decomposition. The advantages of this contract type are in the fact that a contractor has broad economic initiative and does not go to expense. The implementation of the "costs plus" contracts is a difficult task because it is rather challenging to identify in advance the remuneration of a contractor. That is why this contract type is concluded not through an open auction but in the result of the negotiations[9]. Some researchers note that the excess over the costs forms the small proportion in this contract type with the exception of cases when the contractor is a company with a good reputation that proved its efficiency while performing contract work. The disadvantage of the "costs plus" contracts is in the fact that they are concluded primarily through open auctions and not in the result of negotiations. Nevertheless, this contract type is believed to be more effective when ordering new production that has not been produced before and has difficult specification[10].The financial conditions of this contract type imply the compensation of all costs that are permitted under the law by the state. Moreover, in many countries only cost outlays are compensated excluding any remuneration or profit. These contracts that exclude profit are concluded with nonprofit corporations like universities, colleges and some government agencies. These contracts are used in the performance of the research and development programs. The "costs plus fixed remuneration" contract is concluded when the contract stipulates not only the compensation of cost outlays but also the payment of the fixed remuneration. This type of contract is applied by the state in those cases when there is no precisely formulated specification of a good, impossible to determine its economic parameters or predict the contractor costs in the future[11]. The formula of these contracts includes: the initial and the end contract price, planned and actual production costs and fixed remuneration. In case when a contract of a type "costs plus stimulating remuneration" is applied between the state and the contractor the sum of the remuneration is discussed in advance. This sum can be specified later. There are some aspects that should be mentioned in this type of a contract: target costs, minimum and maximum remuneration and the formula of sum adjustment. More commonly these contracts are used to perform research and develop activities on the stage of design and experimental tests when economic, technical and other parameters are formulated in bare outlines.

[9] Hinze, J., 1993. Construction Contracts. McGraw-Hill Series in Construction Engineering and Project Management. Irwin/McGraw-Hill.

Clough, R., Sears, G., 1994. Construction Contracting. Wiley, New York.

[10] Goldberg, Victor P., 1977. Competitive bidding and the production of precontract information. Bell Journal of Economics 8 (1), 250–261.

[11] Bajari, P., Tadelis, S., 2001. Incentives versus transaction costs: a theory of procurement contracts. The Rand Journal of Economics 32 (3), 387–407 Autumn.

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Bajari, P., McMillan, R., Tadelis, S., 2009. Auctions versus negotiations in procurement: an empirical analysis. Journal of Law Economics and Organization 25 (2), 372–399.

Bajari, P., Houghton, S., Tadelis, S., forthcoming. Bidding for incomplete contracts: an empirical analysis of adaptation costs. American Economic Review.

Therefore, when ordering simple and reasonably difficult projects the application of fixed price contracts is an informed decision. The conclusion of these contracts through tendering procedures will contribute to the quality and efficiency growth of orders. When the specification of ordered good or service is difficult it is rational to conclude "production costs plus" contract. However, in this case it is necessary to control the reputation of the contractor-company. In order to evaluate the reputation, the state as an order giver may conduct a survey of stand-alone companies for which the contracts were implemented[12]. It should be noted that stimulating contracts are the most effective form of contracts when it is impossible to conclude fixed price contract. These contracts stimulate the corporation-contractor to increase work efficiency because the stimulation or profit growth is received only for high technological indicators or for the advancing of delivery period. In our research we study the role of state contracts in radio-electronic industry in Russia. The data about the state contracts cost in a one good of the radio-electronic industry from 2015 to 2017 is presented in table 3. The data in the table shows that in comparison with 2015 in 2017 the volume of state contracts on chips has decreased by 1,5 times. That caused the economy proportional decrease that represents the discrepancy between the initial maximum price of the contract and actual price according to which the contracts were executed.

Table 3. Data about the cost of chips contracts from 2015 to 2017.

Year	Contract initial (maximum) price, RUB.	Contract actual price, RUB.	Savings
2015	575 745 792,0	570 168 006,4	5 577 785,2
2016	51 730 471,8	51 385 386,64	345 085,1
2017	371 199 828,0	371 158 388,7	41 439,7

During the period under review the share of radio-electronic industry goods imported from other countries has fallen by half. The cost of computer units in 2015 amounted to 775 249 398 USD, while in 2017 it was 691 703 196,2 USD. The cost of imported processors and controllers was 518 007 339,1 USD in 2015, and in 2017 it was 353 598 115 USD. Chips import and export data shows the reduction in import of this group goods. In 2014 export volume comprised 543 191 963,0 USD, and in 2017 it was 353 598 115,0 USD. In comparison with 2014 there is a 1,5-fold decrease in the import of chips. However, it should be noted that with the import reduction there is a decrease in the volume of exported goods. In 2017 export volume amounted to 6 841 940,2 USD that is 26,6 times less than in 2014. We can assume that export reduction is connected with the refocusing of Russian producers to the internal market, meaning the satisfaction of internal demand on this good.

Table following on the next page

[12] Ye, L., 2007. Indicative Bidding and A Theory of Two-Stage Auctions. Games and Economic Behavior 58, 181–207.

Table 4. Export and import dynamics of certain product types of radio-electronic industry in Russia from 2014 to 2017 (USD) (Based on the data of Federal Customs Service of the Russian Federation (http://stat.customs.ru/apex/f?p=201:2:2924698142832393::NO)).

Economic activity	Period	Import/ export	Total
Processors and controllers with or without storing devices, converters, logical circuits, boosters, synchronizers or other schemes	2014 year	**Import**	**543 191 963,0**
		Export	182 567 241,2
	2015 year	**Import**	**518 007 339,1**
		Export	37 530 965,0
	2016 year	**Import**	**424 373 200,4**
		Export	6 381 716,0
	2017 year	**Import**	**353 598 115,0**
		Export	6 841 940,2

The following analysis is focused on the study of state contracts in radio-electronic industry that are concluded with businesses and organizations taking into account company size and form of ownership. On the picture 2 there is a map of radio-electronic industry businesses allocation in respect to the form of ownership and size. According to this data from 261 businesses there are 187 large radio-electronic industry businesses, 15 middle businesses, 23 small businesses and 36 micro-small. The major part of state contracts is concluded with large businesses, from 187 large businesses 129 ones got state contract in 2017. The fewest number of contracts is concluded with micro-small businesses. In 2017 from 36 micro-small businesses the contracts were concluded with 6 ones. This uneven allocation of radio-electronic industry businesses is noted not only in the area, but also in the form of ownership. Major part of businesses is located in the central part of Russia and private form of ownership is a prevailing one. There are 123 businesses that belong to the private sector, 37 ones are public-owned, 16 ones are state corporations, 1 is a foreign business, 5 businesses belong to both private and foreign forms of ownership and 70 businesses belong to mixed ownership form (public-private). Most part of businesses with which state contracts were concluded are public ones. 27 businesses of this ownership form are the contractors of state contracts in 2017. From 70 businesses that belong to mixed ownership form 51 ones are the contractors of state contracts.

Figure following on the next page

Picture 2. The map of radio-electronic industry businesses allocation[14]

Map symbols

Business size:

- *Large*
- *Medium*
- *Small*
- *Micro-small*

Business ownership form:

- *Mixed Russian ownership with the share of federal ownership*
- *Other mixed Russian ownership*
- *Ownership of public corporations*
- *Ownership of foreign corporate entity*
- *Joint private and foreign ownership*
- *Private ownership*
- *Federal ownership*

Participation in state procurements

1 *Business that is a contractor of state contracts*

2 *Business that is not a contractor of state contracts*

4. CONCLUSION

It should be noted that this analysis is based on the official data about state procurements that are concluded through fixed price contracts. That is why we have not studied those part of contracts which is concluded through negotiations or contracts that are based on production costs. Nevertheless, even this analysis concerning the data about fixed price contracts enables to formulate the conclusions about the role of state contracts in the process of industries development management. It can be concluded that the stimulation of the production through state contracts has a positive influence on the industry development. By the example of chips production, we showed that there is a positive interrelation between state procurements and import volume. The reduction of the chips import volume can be connected, firstly, with the development of the import substitution plan for the radio-electronic industry production by the

[14] Formulated based on the data of Federal State Statistics Service concerning Russian National Classifier of Ownership Patterns (http://statreg.gks.ru/); Unified register of small and medium-sized businesses of the Russian Federation Federal Service for Taxes (https://rmsp.nalog.ru/); Unified information system site in the sphere of goods, works, services procurements for provision of public and municipal needs; https://gisp.gov.ru/service-market/org/

Ministry of Industry and Trade of Russia in 2015, secondly, with state procurements of the radio-electronic industry goods. Listed measures have delayed effect that explains production import reduction that occurred not in 2015 but in 2017. We suggest that for more precise confirmation of our results it is necessary to apply standard methods of mathematical data analysis that will help in identifying of the presence and degree of analyzed indicators interrelation. However, in this research due to the fact of limited statistical data volume the application of such analysis is impossible. In this regard further researches in this direction can be connected with mathematical formalizing of the developed hypotheses.

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UNDERSTANDING TOURIST SPENDING ON CULTURE AND ENTERTAINMENT

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ABSTRACT

The aim of this study is to find out what are the determinants of tourist expenditure on culture and entertainment in two urban destinations (Rijeka and Opatija, Croatia). Tourists in these destinations spent most of their budget on accommodation (47%) and on food and beverages (21%). However, due to the fact that expenditure on culture and entertainment accounts for only 10% of their total daily tourist expenditure per person, it was deemed important to find ways to enhance that level of spending. Considering that both towns, despite being urban destinations, have strong seasonality issues, it is necessary to make some changes in their tourism offerings in terms of innovations and attractiveness. As a result, tourists would not be motivated to travel there just for the sun and sea, but also for a wide range of cultural and entertainment opportunities. If the latter elements are enhanced and better presented, tourists would be more satisfied and, consequently, would spend more on these attributes of the offering. To achieve the main objective of this study, a tourist on-site survey was conducted from January to December 2016. The assessment was carried out on a sample of 824 tourists who visited and spent at least one night in these towns. The methodology included descriptive statistics, paired sample t-test, principal components analysis (PCA) and regression analysis. To obtain the frequencies, descriptive statistical analysis was performed on the socioeconomic, demographic and travel-related variables. The t-test was performed to find out whether there are any significant differences between importance and satisfaction levels on attributes referring to culture and entertainment. The PCA was applied to identify the dimensions of tourist satisfaction and a regression analysis was carried out for the purpose of identifying the factors that influence expenditure on culture and entertainment. T-test results confirmed that all attributes of the destination offering referring to culture and entertainment have statistically significant negative gap scores, indicating that satisfaction with those attributes is less than their importance to the respondents. The PCA resulted in a clear structure of five satisfaction components, which were labelled as follows: first component – 'traffic and information availability'; second component - 'environment'; third component - 'activity opportunities'; fourth component - 'facilities quality' and fifth component – 'hospitality'. The third and fourth components encompassed elements that are related to cultural and entertainment opportunities. Nevertheless, all five components were used in the regression analysis. The findings indicate that age, length of stay, educational level, type of accommodation, transportation means, daily expenditure, and satisfaction with traffic and information availability significantly influence the expenditure on culture and entertainment in these urban destinations. This study has practical implications since destination management can base their future decisions on its results. Results clearly indicate that the diversity of cultural events and the presentation of cultural and historic heritage as well as entertainment opportunities fail to meet the tourists' expectations. Hence, further improvements are necessary to increase the tourists' satisfaction and their expenditure level.

Keywords: *culture, entertainment, tourist expenditure, tourist satisfaction, tourist spending*

1. INTRODUCTION

This study focuses on tourist expenditure on culture and entertainment in Rijeka and Opatija, Croatia. Since this expenditure segment accounts for only 10% of total daily tourist expenditure per tourist, the main purpose was to investigate what factors affect its level. It is evident that expenditure on these tourism offering elements is very low and by obtaining information on expenditure determinants it would be possible to find ways to increase this level in order to enhance the economic impact of tourism for the whole destination. Opatija and Rijeka form a unique Adriatic Sea destination because of their close proximity to each other (just a 20 minutes' drive apart), but their tourism settings are different. Opatija is a town with a long tourism tradition and a rich tourism infrastructure. Rijeka is more of an urban tourism destination that has just recently started focusing on tourism development. Due to the fact that the main motivation for coming to these destinations is the sea and sun, both destinations have high seasonal tourism traffic, with the majority of arrivals registered from June to September. Hence, to prolong the tourism season, strategic planning documents foresee the development of different forms of special-interest tourism (e.g. cultural tourism, MICE, health tourism). Therefore, it is evident that the offerings of these towns need to be upgraded and modified. Doing so is expected to boost their tourist expenditure levels. In addition to enriching the offering elements that do not focus directly on the sun and sea offering, it is necessary to investigate the factors that influence the tourist expenditure level and structure. As Lin et al. (2015) underlined, understanding the tourists' expenditure patterns will lead to the identification of profitable market segments and to the definition of adequate market segmentation strategies, that will, ultimately, lead to the greater economic impacts of tourism. The literature review shows there is still a need to conduct research on tourist expenditure since most of the research has been done on the macro level and less, on the micro level (Brida and Scuderi, 2013; Disegna and Osti, 2016; Fredman, 2008, Marrocu et al. 2015). Moreover, with regard to micro data, the majority of researchers have tested the relationship between total expenditure (per day, per trip or per person) and different types of variables. A smaller number of authors have focused on testing the relationship between tourist expenditure on culture and/or entertainment and different possible determinants. This study aims to fill that literature gap by providing evidence of a significant relationship between various characteristics and attitudes of tourists and their expenditure level on culture and entertainment.

2. LITERATURE BACKGROUND

A substantial body of research on tourist expenditure has been devoted to investigating the relationship between its level and different variables (Brida and Scuderi, 2013; Disegna and Osti, 2016; Marcussen, 2011; Marrocu et al. 2015; Thrane, 2014, 2016). However, the majority of previous studies have used macro-level data (Brida & Scuderi, 2013; Craggs & Schofield, 2009; Fredman, 2008). As Belenkiy and Riker (2013) point out, the advantage of using micro data is that these data report information on the tourism expenditures of individual tourists, together with their different characteristics. Such data are usually obtained through different surveys as they are not available from official statistics. According to the recent extensive reviews on tourist expenditure determinants (e.g. Brida and Scuderi, 2013; Marcussen, 2011; Mayer and Vogt, 2016), tourist expenditure research can be divided into a) on-site studies (where the tourists' total trip expenditure is used as a dependent variable in the regression models) and b) household studies (that are focused on a household's total trip expenditure) (Thrane, 2016). This research fits into the first group of studies since it uses the results of an on-site survey, with respondents being tourists visiting Rijeka and Opatija who reported on the level and structure of their expenditure in the destinations.

Tourist expenditure levels in previous studies are usually expressed either as total expenditure for the whole trip (that could also be expressed per party, per household or per person), or as daily expenditure (again, per person or per party) (Brida and Scuderi, 2013). This study uses daily tourist expenditure per person and follows the econometric practice, using the natural logarithm of expenditure just as it was used by other authors, such as García-Sánchez et al. (2013), Marrocu et al., (2015) or Thrane, (2014, 2016). In terms of methodology, most tourism expenditure studies (e.g. Fredman, 2008; Legohérel and Wong, 2006; Marcussen, 2011 and others) have employed ordinary least squares regression analysis (OLS), as does this study. In the literature, possible tourist expenditure determinants usually fall into three broad groups (Brida and Scuderi, 2013; Marcussen, 2011; Marrocu et al., 2015; Thrane, 2016). The first group refers to variables related to economic and sociodemographic characteristics (age, gender, income, educational level, occupation, origin, etc.); the second, to trip-related characteristics (length of stay, accommodation type, transportation mode, type of trip organisation, etc.) and the third, to psychographic characteristics (attitudes, satisfaction levels, etc.). The first two groups of variables are the most commonly employed in previous studies that focus on investigating tourist expenditure determinants, while the psychographic variables are rarely used in the models (Brida and Scuderi, 2013). Income is one of the most often used economic and sociodemographic characteristics, and the majority of studies have proved it to be a statistically positive predictor of tourist expenditure (e.g. Fredman, 2008; García-Sánchez et al., 2013; Marrocu et al., 2015; Thrane, 2014; 2016). When sociodemographic characteristics are concerned, age is used the most in the models. The results of those models, however, are often in conflict. Namely, the results of certain studies confirm age as a significant predictor of tourist expenditure. For example, Jang et al. (2004) and Jones et al. (2009) have found a positive relationship, while Chhabra (2006) and Wang et al. (2006) have confirmed an inverse relationship. The situation is similar in the case of educational level as well: Aguilo and Juaneda Sampol (2000) and Jang et al. (2004) found a positive relationship between educational level and tourist expenditure, while Nicolau and Más (2005) did not find a statistically significant relationship. When it comes to trip-related variables, length of stay is one of the most widely used variables. With regard to daily expenditure, the results of many studies show the negative effect of length of stay on daily expenditure (Disegna and Osti, 2016; Kastenholz, 2005; Mayer and Vogt, 2016; Svensson et al., 2011). Further, in case of trip organisation, Chen and Chang (2012) and Mayer and Vogt (2015) confirmed that tourists, who individually organise their trips and stay, tend to spend more in comparison with those who use travel agency services. The type of accommodation is another variable that has very often been included in models as a possible predictor of tourist expenditure. Many studies have confirmed, for instance, that tourists staying in hotels spend more than those staying in other types of accommodation (Agarwal and Yochum, 1999; García-Sánchez et al., 2013; Svensson et al., 2011). Additionally, some authors reported a significant relationship between transportation mode and tourist expenditure as well (Fredman, 2008; Marcussen, 2011; Svensson et al., 2011). Finally, the last group refers to psychographic variables, which are the least included in studies on tourist expenditure determinants (Brida and Scuderi, 2013). Among them, motivation is the most employed variable, while others, like satisfaction with an offering or taste, are rarely employed. Hence, more research needs to be conducted in order to made sound conclusions in this regard. Therefore, this study includes satisfaction variables and tests their relationship with tourist expenditure on culture and entertainment. It is evident that different studies have reported ambiguous results, since certain variables turned out to be significant predictors of tourist expenditure in some studies, but not in others. In addition, certain variables in some studies were found to be statistically positively related to expenditure, although a negative relationship was found in other studies (Wang and Davidson, 2010). Moreover, the majority of studies focus on overall expenditure determinants, while few studies focus on tourist expenditure on specific

cost components. This study belongs to latter group, since it focuses on identifying the determinants of tourist expenditure on culture and entertainment.

3. DATA COLLECTION AND METHODOLOGY

Data for this study were collected between January and December 2016. In total, 1467 respondents were randomly selected, aged 18 years and older. Among them, 1249 respondents, who spent at least one night in Rijeka or Opatija, agreed to participate as respondents in this study. Since the main purpose of this paper is to identify the determinants of tourist expenditure on culture and entertainment, only those respondents who spent a certain amount of money on those elements were included in the analyses. Hence, due to the fact that some of the respondents reported zero expenditure on culture and entertainment, a total of 824 questionnaires were used for the analysis. The questionnaires were available to the respondents in Croatian, English, German and Italian. The goal of the questionnaire was to explore the tourists' profile in terms of their sociodemographic and travel characteristics, and their level of satisfaction with towns' tourism offerings during different seasons. The main part of the questionnaire refers to the structure and level of the respondents' expenditure in the destination.

Table 1: Sociodemographic characteristics of the sample (N=824)

Characteristic	***%***	***Characteristic***	***%***
Country of Origin		***Gender***	
Croatia	*22.6*	*Male*	*45.3*
Germany	*14.1*	*Female*	*54.7*
Italy	*14.1*	***Educational level***	
Austria	*12.1*	*Elementary school*	*0.6*
Other	*8.3*	*High school*	*34.1*
Slovenia	*7.3*	*College*	*33.0*
UK	*3.6*	*University degree*	*31.7*
Hungary	*3.5*	*Other*	*0.6*
Bosnia and Herzegovina	*2.2*	***Average monthly income***	
Poland	*2.2*	*up to 500€*	*3.5*
France	*1.9*	*501-1000€*	*10.8*
Holland	*1.5*	*1001-1500€*	*20.1*
Czech Republic	*1.3*	*1501-2000€*	*20.8*
Slovakia	*1.3*	*2001-2500€*	*16.1*
Sweden	*1.3*	*2501-3000€*	*12.7*
USA	*1.0*	*3001-3500€*	*8.7*
Belgium	*0.6*	*3500€ or more*	*7.2*
Switzerland	*0.6*	***Age** (mean)*	*40.2*
Norway	*0.5*		

As seen in Table 1, domestic and foreign tourists make up 22.6% and 77.4% of the sample, respectively, which stands to reason since foreign tourists account for more than 80% of overall arrivals in Opatija and Rijeka (Croatian Bureau of Statistics, 2017). Among foreign respondents, the most numerous are those from Germany and Italy (14.1% of the sample, each) and those from Austria (12.1% of the sample). The majority of the sample comprises respondents who hold high school or college degrees (34.1% and 33.0%, respectively). The majority of respondents (40.9%) have an average monthly household income between 1001 and 2000€. Table 1 also shows that more than half (54.7%) of the respondents were females and that the average age of respondents was 40.

Table 2: Respondents' trip-related characteristics (N=824)

Characteristic	%	Characteristic	%
Trip organisation		**Motives (multiple answers possible)**	
Individually	73.7	Rest and relaxation	22.3
Organized	26.3	Fun	14.7
Transportation mode		New experiences	13.0
Car	55.5	Gastronomy	8.8
Bus	31.2	The beauty of nature and landscapes	11.9
Train	4.1	Visiting relatives/ friends	4.7
Boat	0.4	Sports and recreation	4.2
Plane	8.1	Health reasons	2.6
Motorbike	0.7	Cultural offering	6.7
Travelling		Shopping	4.3
Alone	14.6	Wellness	4.4
With partner	35.9	Business	1.7
With family members	29.1	Other	0.8
With friends/acquaintances	18.4	**Season of visit**	
With associates	1.9	Season (June – September)	41.5
Accommodation		Off-season	58.5
Hotel	50.5	**Intention to return**	
Tourist resort	1.9	No	7.6
Campsite	2.8	Yes	92.4
Private accommodation	25.6	**Intention to recommend**	
Friends/relatives	10.6	No	2.8
Hostel	8.6	Yes	97.2
Accommodation service		**Town**	
Full board	14.0	Opatija	66.0
Half board	29.4	Rijeka	34.0
Bed and breakfast	20.6		
Only overnight stay	36.0		

Table 2 reports descriptive statistics on the characteristics of the respondents' trip and stay in Rijeka and Opatija. The results indicate that most (73.7%) of the respondents organised the trips by themselves whereas 26.3% made use of travel intermediaries. The majority (55.5%) came to the destination by car and by bus (31.2%). Most of the respondents (35.9%) travelled with a partner and 14.6% travelled alone. The majority (50.5%) were found to be staying in hotels, while 25.6% chose private accommodation. In addition, most of them decided on a single overnight stay (36.0%) and 26.4% of the respondents opted for half board within the accommodation premises. As to the motivation for travelling to Opatija and Rijeka, 22.3% were in the destination for rest and relaxation, 14.7% for fun, 13.0% for new experiences, and 11.9% for the beauty of nature and landscapes. However, only 6.7% of the respondents visited these towns because of their cultural offerings. A larger number of respondents stayed in Opatija (66.0%) since this town accommodates more tourists than Rijeka. An interesting finding is related to the season of visit. Opatija and Rijeka are hosts to the majority of tourists during the high season (from June to September). Accordingly, based on the data obtained from the Croatian Bureau of Statistics and in order to obtain a representative sample, more tourists were interviewed during the high season. However, for the purpose of this paper only those respondents who reported expenditure on culture and entertainment were taken into account, and it was found that the majority of respondents spending on these offering elements stayed in Rijeka and Opatija in the off-season (58.5%). On the contrary, when the whole sample was analysed (1249 respondents), it showed that the majority of respondents (51.6%) stayed during

the high season. This is a very important finding for these towns, considering that they are up against heavy seasonality issues and see cultural tourism as one of the ways of prolonging the tourism season. Survey participants were asked to estimate their spending across seven categories including accommodation, food and beverages outside the accommodation facilities, culture and entertainment, sport and recreation, shopping, excursions, and other services. Table 3 reports on the respondents' expenditure level and structure. It has to be noted that, in this study, the expenditure on the way to the destination and back was excluded from the tourists' expenditure since the focus of the analysis was only on the expenditure that is realised in the destination.

Table 3: Respondents' daily expenditure in € (N=824)

Category	Mean	%
Accommodation	*38.7*	*47.5*
Food and beverages	*16.9*	*20.8*
Culture and entertainment	*8.5*	*10.4*
Sport and recreation	*1.6*	*2.0*
Shopping	*9.7*	*12.0*
Excursions	*3.2*	*3.9*
Other products and services	*2.7*	*3.3*
Daily expenditure/person	*81.4*	*100.0*

As seen in Table 3, respondents spend on average 81.4€ per day per person in the destination. A large portion of their daily expenditure refers to expenditure on accommodation (47.5%) and on food and beverages (20.8%). They spend the least on excursions, only 3.9% of their budget. The main focus of this paper is the respondents who spend on culture and entertainment, and the results show that this expenditure accounts for only 10.4% of the tourists' daily budget. From this expenditure structure it is evident that the offerings of Rijeka and Opatija are still weak when it comes to different entertainment, cultural, excursion-related, and sport and recreational opportunities. Therefore, it is necessary to upgrade and innovate this part of their tourism offerings and make them more appealing in order to attract tourists to experience these elements more often.

4. ANALYSIS AND FINDINGS

In addition to reporting their sociodemographic and trip-related characteristics, respondents were asked to rate the importance of, and satisfaction with, 22 different elements. Table 4 presents the importance and satisfaction mean scores, gap scores, as well as the results of the paired sample t-test that was performed on the five elements of the offering that are related to entertainment and culture and to the information provided on them. Respondents rated their importance and satisfaction level on a 5-point Likert scale, with 1 being 'strongly dissatisfied' and 5 being 'strongly satisfied'.

Table following on the next page

Table 4: Difference between importance and satisfaction (N=824)

Attributes	Mean		Gap score	t	df	Sig. (2-tailed)
	Satisf.	Import.				
Quality of information on the destination's website	*3.92*	*4.27*	*-0,35*	*10.711*	*823*	*0.000*
Clearly signposted tourist directions in the destination	*3.94*	*4.23*	*-0,29*	*8.566*	*823*	*0.000*
Presentation of the cultural and historical heritage	*4.07*	*4.26*	*-0,19*	*5.980*	*823*	*0.000*
Diversity of cultural events	*3.77*	*4.16*	*-0,39*	*10.865*	*823*	*0.000*
Entertainment opportunities	*3.75*	*4.19*	*-0,44*	*12.007*	*823*	*0.000*

Note: Mean values range from 1 (extremely unsatisfied/ unimportant) to 5 (extremely satisfied/ important). Gap score - the mean importance score for each attribute is subtracted from the respective mean satisfaction score.

Results indicate that, of the analysed offering attributes, the respondents are the most satisfied with "presentation of the cultural and historical heritage" (average satisfaction rate is 4.07) and the least satisfied with "diversity of cultural events" (3.75) and "entertainment opportunities" (3.75). Furthermore, according to the results, respondents consider "quality of information on the destination's website" and "presentation of the cultural and historical heritage" to be the most important elements for them, since their mean importance ratings are 4.27 and 4.26, respectively (Table 4). Gap scores were calculated by subtracting the mean importance score for each attribute from the respective mean satisfaction score. Unfortunately, a negative gap score was calculated for all elements. As Levenburg and Magal (2004) pointed out, a negative gap score indicates that satisfaction with a certain attribute is less than its importance. In addition to that, the results of the paired-sample t-test reveal that the gap differences are statistically significant, meaning that differences between the respondents' perceived importance and satisfaction with all five analysed elements are significant. These results indicate that elements relating to the cultural and entertainment offering are very important to tourists but need to be improved since they are not performing well. Considering that respondents rated their satisfaction with 22 different destination attributes, principal component analysis (PCA) was performed based on the satisfaction scores of all attributes to identify the underlying dimensions of the destination attributes. The PCA, using Oblimin rotation with Kaiser normalisation, identified for the satisfaction scale, produced a five-component solution, explaining 61.9% of the variance. The Bartlett test of sphericity was significant ($p<0.000$), and the Kaiser-Meyer-Olkin value was 0.910, indicating that the sample is such that it would yield distinct and reliable factors (Field 2009, Hair et al. 2005).

Table following on the next page

Table 5: Results of principal component analysis (PCA) of satisfaction with the tourism offering

Items and principal components	***Loadings***	***Communality***	***Variance explained (%)***	***Cumulative (%)***	***Cronbach's Alpha***	***Mean***
Traffic and information availability			***35.025***	***35.025***	***0.811***	***3.92***
Transportation links	*0.776*	*0.581*				
Clearly signposted tourist directions in the destination	*0.757*	*0.664*				
Availability of information in the destination	*0.707*	*0.626*				
Quality of local transport	*0.671*	*0.603*				
Quality of information on the destination's website	*0.634*	*0.551*				
Environment			***9.477***	***44.502***	***0.828***	***4.16***
Preserved environment	*0.889*	*0.763*				
Cleanliness of the destination	*0.835*	*0.700*				
The beauty of nature and landscapes	*0.770*	*0.611*				
Equipment and maintenance of the beaches	*0.672*	*0.592*				
Activity opportunities			***7.088***	***51.590***	***0.855***	***3.80***
Sports facilities	*0.866*	*0.722*				
Excursion offering	*0.810*	*0.644*				
Entertainment opportunities	*0.796*	*0.641*				
Facilities for children	*0.688*	*0.578*				
Shopping opportunities	*0.681*	*0.480*				
Diversity of cultural events	*0.454*	*0.576*				
Value for money	*0.402*	*0.373*				
Quality			***5.476***	***57.066***	***0.731***	***4.12***
Quality of accommodation facilities	*0.832*	*0.726*				
Quality of catering facilities	*0.788*	*0.668*				
Quality of cultural and historical heritage presentation	*0.608*	*0.577*				
Hospitability			***4.873***	***61.939***	***0.760***	***4.29***
Cordiality of employees in tourism	*-0.731*	*0.711*				
Feeling of personal safety and security	*-0.728*	*0.649*				
Friendly and hospitable residents	*-0.566*	*0.591*				

Note: Rotation method: Oblimin with Kaiser normalization. Mean values range from 1 (strongly unsatisfied) to 5 (strongly satisfied).

As seen in Table 5, most of the factor loadings were greater than 0.60, indicating good correlations between the items and the factor groupings to which they belong (Kozak and Rimmington, 2000). Further, the first component (explaining 35.0% of the variance in the model) encompassed attributes related to transportation, traffic and information availability and was labelled 'Traffic and information availability'. The second component, labelled 'Environment', explained 9.5% of the variance and was composed of four items (environment preservation, cleanliness, beauty of nature, and maintenance). Aspects related to the different facilities in the destination were labelled 'Activity opportunities' and explained 7.1% of the variance in the model. The forth component, labelled 'Quality', explained 5.5% of the variance

and was loaded with three items. The last component was labelled 'Hospitability' and was loaded with three items related to a feeling of personal safety and security, and the residents and employees' cordiality and hospitability (Table 5). Furthermore, the results showed that the α coefficients of the five components ranged from 0.731 to 0.855, thus exceeding the value of 0.70, suggesting good levels of reliability (Baggio and Klobas, 2011). Table 5 also reports the mean satisfaction ratings of the five components. The results indicate that the most satisfactory component for the respondents is 'Hospitability', since its mean satisfaction rating is 4.29, followed by 'Environment' (mean score 4.17) and 'Quality' (mean score 4.12). The results show that the least satisfactory components are those referring to the 'Activity opportunities' (mean score 3.8) and to 'Traffic and information availability' (mean score 3.92), again indicating that these are the attributes that need the destination management's attention and improvements in the future. In line with the presented results, the five components can be considered reliable dimensions of satisfaction with the tourism offering and can be used in the following regression analysis. Based on the results of the PCA, a regression analysis was performed using the five components as independent variables in addition to age, educational level, average household income, season of visit, trip organisation, length of stay, transportation mode, accommodation type, and average daily expenditure as the independent variables. Following the econometric practice and use of the natural logarithm of expenditure rather than level values (e.g. García-Sánchez et al., 2013; Marrocu et. al., 2015; Thrane, 2014; 2016), the natural logarithm of average daily expenditure on culture and entertainment per person was used as the dependent variable. The regression results are summarized in Table 6. Due to the fact that no VIF values exceeded 10.0, and the values of tolerance indicated that in no case did collinearity explain more than 10% of any predictor variable's variance, it can be concluded that there was no evidence of multi-collinearity in the model (Zhang et al., 2010). The R^2 was 0.340, which showed that 34% of the variance in the respondents' expenditure on culture and entertainment was explained by the selected independent variables.

Table 6: Regression model

Model	*Unstandardized Coefficients*		*t*	*Sig.*	*Collinearity Statistics*	
	B	*Std. Error*			*Tolerance*	*VIF*
(Constant)	*-1.342*	*0.350*	*-3.833*	*0.000*		
Age	*-0.006*	*0.002*	*-2.790*	*0.005*	*0.839*	*1.191*
Educational level	*0.080*	*0.034*	*2.395*	*0.017*	*0.859*	*1.164*
Average monthly household income	*-0.003*	*0.017*	*-.195*	*0.845*	*0.744*	*1.344*
Season vs. off-season	*0.030*	*0.059*	*.513*	*0.608*	*0.801*	*1.248*
Trip organisation	*-0.095*	*0.069*	*-1.386*	*0.166*	*0.744*	*1.345*
Length of stay	*-0.035*	*0.005*	*-7.067*	*0.000*	*0.934*	*1.071*
Transportation mode	*0.123*	*0.058*	*2.129*	*0.034*	*0.825*	*1.212*
Accommodation	*0.480*	*0.061*	*7.903*	*0.000*	*0.743*	*1.346*
Traffic and information availability	*0.176*	*0.057*	*3.102*	*0.002*	*0.546*	*1.831*
Environment	*-0.092*	*0.049*	*-1.883*	*0.060*	*0.673*	*1.487*
Activity opportunities	*-0.091*	*0.051*	*-1.763*	*0.078*	*0.561*	*1.783*
Quality	*0.015*	*0.052*	*0.287*	*0.774*	*0.619*	*1.615*
Hospitality	*-0.082*	*0.048*	*-1.711*	*0.087*	*0.673*	*1.486*
Average daily expenditure (log)	*0.793*	*0.052*	*15.293*	*0.000*	*0.778*	*1.285*

Note: $R^2 = 0.340$; $F(14, 808) = 29.772$; $p < 0.001$; dependent variable: log daily expenditure on culture and entertainment per person; VIF - variance inflation factors.

Out of fourteen dependent variables, seven turned out to be significant predictors of the expenditure on culture and entertainment. The findings show that there is a negative relationship between age and the dependent variable, indicating that younger respondents tend to spend less on culture and entertainment that older ones. Marrocu et al. (2015) also found a negative effect of age but only in the case of food expenditure. Furthermore, findings of this study confirm previous evidence on the relevance of educational level as one of the predictors of tourist expenditure. For example, Legohérel and Wong (2006) found a negative relationship, while Rao (2001) found a positive relationship, between educational level and tourist expenditure. In this study, it was found that respondents with a higher educational level tend to spend more on culture and entertainment in the destination in comparison with those with a lower educational level. As expected, a statistically significant negative relationship was determined between the length of stay of respondents and their daily expenditure on culture and entertainment (Table 6). This result is in line with those obtained by Alegre et al. (2011), Disegna and Osti (2016) and Mehmetoglu (2007), who also found a negative relationship between length of stay and daily expenditure. Furthermore, the findings indicate that respondents who travelled to the destination by car tended to spend more on culture and entertainment than those who arrived by some other mode of transportation. The results also indicate that those staying in a hotel tended to spend less on culture and entertainment than those staying in other types of accommodation. These results are the opposite of those obtained by García-Sánchez et al. (2013) and Svensson et al. (2011). It was also found, as expected, that respondents with higher total daily expenditure tend to spend more on culture and entertainment. Out of the five components of satisfaction, only the one referring to traffic and information availability has been proved to be a statistically significant predictor of daily expenditure on culture and entertainment. Hence, it is very important to provide quality transportation links and local transport, as well as to ensure more clearly signposted tourist directions in the destination, better availability of information in the destination and higher quality of information on the destination's website. By doing so, tourists will obtain better information on the destination's cultural and entertainment offering and, in turn, should be more attracted to consume those offering elements. The findings also indicate that household income was not a significant predictor of the expenditure on culture and entertainment. Similarly, in their studies, Akca et al. (2016) as well as Mustika et al. (2016) found that income is not a significant factor of expenditure. In addition to income, season of visit, trip organisation, and satisfaction with the other four components (Environment, Activity opportunities, Quality, and Hospitality) turned out not to be significant predictors of expenditure on culture and entertainment. All the results indicate that, to be able to reach a conclusion about what factors affect the level of expenditure on culture and entertainment, additional research still needs to be carried out in different settings and different destinations. The results of this study confirm that the level of this type of expenditure is still very low, indicating the need for destination management to enrich and innovate the attributes relating to the entertainment and cultural offering and to provide better information about them.

5. CONCLUSION

Given the importance of tourism in Croatia, in addition to knowing the main information on tourist arrivals and overnight stays, understanding tourism expenditure patterns is vital for tourism destination management and planning. This study sought to explore the determinants of tourist expenditure on culture and entertainment. The results confirmed that the level of the overall expenditure is low, and that its structure is not optimal since the bulk of the tourists' budget goes towards accommodation and food and beverages. Moreover, findings revealed that the level of expenditure on culture and entertainment is very modest (representing only 10% of overall tourist budget) and that some changes are necessary in order to enhance tourist spending

in the destination. An interesting finding was that the majority of tourists, who spend on culture and entertainment, visit Rijeka and Opatija in the off-season (58.5%). This implies that the elements of the offering relating to culture and entertainment are of great importance for smoothing tourism seasonality. However, results also indicate that tourist satisfaction with the destination offering's attributes relating to culture and entertainment is less than the attributes' importance, indicating low tourist satisfaction. These results also confirm the necessity of innovating and enriching the cultural and entertainment offering. So, tourists would not be motivated to come to Opatija and Rijeka only by the sun and sea, but also by a wide range of cultural and entertainment opportunities. If these elements were enhanced and better presented, tourists would be more satisfied and, consequently, would spend more on them. Additionally, the findings indicate that younger respondents tend to spend less on culture and entertainment that older ones. Furthermore, respondents with a higher educational level and those who came to the destination by car tend to spend more on the mentioned elements. It was also found that respondents staying in a hotel tend to spend less on culture and entertainment than those staying in other accommodation types, although many studies researching the determinants of overall expenditure found just the opposite (for example, García-Sánchez et al., 2013; Svensson et al., 2011). Another important finding was that satisfaction with transportation links, availability of information in the destination, quality of information on the destination's website and clearly signposted directions in the destination have also been proven to be statistically significant predictors of daily expenditure on culture and entertainment. This study has practical implications since destination management can base their future decisions on its results. Results clearly indicate that the diversity of cultural events, the presentation of cultural and historical heritage, and entertainment opportunities do not meet the tourists' expectations. Hence, further improvements are necessary to enhance the tourists' satisfaction and raise their expenditure level. Therefore, the results could serve as guidelines to future destination-management activities that should focus on the enrichment of the destination's cultural and entertainment offering as well as on improving its promotion. Furthermore, a better understanding of tourist expenditure on culture and entertainment can provide a more accurate assessment of the economic impact of tourism, which in turn should help in the design and implementation of effective policies/measures for increasing the overall economic benefits of tourism (Wu et al. 2013). The main limitation of this study refers to the fact that the research was conducted in a restricted specific geographic area (Rijeka and Opatija). Hence, it would be useful if similar surveys were conducted in other towns in order to compare results and gain a more objective understanding of expenditure on culture and entertainment. In addition, as the presented regression model does not take account of all possible variables, models that take certain other variables into consideration (for example, motivations, type of trip organisation, being first or repeat visitors) might lead to an even better understanding of tourist expenditure.

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INDUSTRY 4.0 – FUTURE OF PRODUCTION SYSTEMS

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ABSTRACT
The article presents the opportunities and threats for production systems from the mechanical processing industry in the context of industry 4.0. The transition from a human-controlled mechanized production system to a fully automated robotised one based on artificial intelligence seems to be a necessary process. An analysis of positive and negative effects of a particular implementation should be carried out, as the enterprises enrooted in the manufacturing sector have noticed the fact that high pressure concerning the productivity growth, increasingly stronger competition and expectations in terms of the flexibility of operations are the basic elements of development.
Keywords: *Industry 4.0, Production system, Production company, Intelligent factory, Internet of Things*

1. INTRODUCTION

Modern production systems are equipped with machines and devices basing on numerical control. The most common are the PLC microprocessor control systems, which due to the asset of being easily programmable, are experiencing significant development. However, attention should be paid to the expected, in the future, direction of industrial development, mainly of the metal product industry, which is a digital factory equipped with a full IT integration of all its components and production resources, as well as surrounding production areas. In this context, PLCs will mainly play the role of executive components. It is therefore necessary to change the perception of the company's production system, from the traditional one based on technological routes to advanced ones - the intelligent models. In this direction of evolvement, the newly developed idea of Industry 4.0 fits well. The introduction of commonly understood computerization with elements of artificial intelligence compatible with production systems may bring a number of benefits in the future. Initial assumptions comprise the benefits of implementing the concept of a smart plant, which are as follows:

1. technical benefits, which include the increase of the manufacturing flexibility, shortening of the product's manufacturing time, greater infallibility of machinery and production equipment, a larger variety of products,
2. economic benefits - reduction of own production costs, better efficiency of production processes (e.g. logistic processes, administrative processes), improvement of design and business models.

It is estimated that the introduction of the Industry 4.0 idea will contribute to an increase in the enterprises' turnover and a decrease in production costs from 6 % to 8 % (Davies, 2015) and even 10 % (Szulewski, 2016).

2. THE IDEA OF INDUSTRY 4.0

Idea of Industry 4.0 is a concept created in 2011 in Germany (Lee, 2013). It is assumed that the term Industry 4.0 applies to the area of rapid transformations in the design, production, operation, products and production system services of various branches of industry. Due to the specifics of the various production systems, it is impossible, in principle, to generalize the term of Industry 4.0 (Schmidt R., Möhring M., Härting RC, Reichstein C., Neumaier P., Jozinov P., 2015). This means that the scope of the Industry 4.0 definition should be considered individually, depending on the needs of the given company. Nevertheless, an attempt has been made to generalize and elaborate the definition of Industry 4.0. Therefore, it is assumed that Industry 4.0 is the concept of integrating intelligent machines, systems and introducing changes in production processes that increase production efficiency and flexibility, as well as new ways of performance and the role of people in the industry. The inseparable aspects of Industry 4.0 (the fourth world industrial revolution, Table 1) is the connection between information and ICT technologies for the sake of system integration at multiple stages of new product development, communication in simulation network devices, modelling and virtualisation of design processes of both new products and new production techniques.

Table1: Industrial revolutions

	TIME PERIODS	TECHNOLOGIES
1.0	1784 – mid 19th century	Water powered mechanical manufacturing
2.0	Late 19th century – 1970s	Electric powered mass production (assembly line)
3.0	1970s – Today	Electronics and information technology, automation of complex tasks
4.0	Today –	Integration of intelligent machinery and systems based on artificial intelligence (AI)

Related concepts of the Fourth Industrial Revolution are related to new and innovative technological solutions in the production and management areas. The most important include: Internet of Things, cyber-physical systems, Intelligent Factory, virtual reality, BigData or network connectivity.

2.1. Internet of Things – IoT

Internet of Things was defined for the first time by Kevin Ashton in 1999 (Ashton, 2009). The author suggested using data transmission via the Internet using RFID radio identification to control the company's supply chain. Nowadays, it is believed that the Internet of Things is a technology that enables to connect any device to the Internet and manage it from any place with access to the Internet as well as to collect information about the aforementioned device.
In the context of industrial systems, the Industrial Internet of Things (IIoT) stands out. Similarly to IoT, the function of IIoT is to gather data from production processes and transferring it to data centres. The Industrial Internet of Things comprises industrial devices, such as: sensors, actuators, machine and device control systems, PLCs, engines and pumps.

2.2. Cyber-physical systems

Cyber-Physical Systems (CPS) are defined as a combination of the computational and the physical processes layers (Lee, Bagheri, Kao, 2015). In this aspect, machines or devices with a high degree of flexibility and operation autonomy with built-in monitoring and controlling

systems of physical processes interact with the global communication network. Similarly, but on a smaller scale, there is a running CIM (Computer Integrated Manufacturing) system. The devices are connected to each other horizontally in a closed system, creating a locally networked embedded system with a hierarchical structure.

2.3. Virtual Reality

Virtual Reality (VR) is defined as elements of the artificial reality image of the real world, created with the use of information technology. The main element of VR is the generation of images and acoustic effects. The use of virtual reality in manufacturing enterprises permits an intuitive and transparent presentation in the form of dependencies and production links images, production or assembly processes, as well as logistic processes. The possibility of early presentation of the production tasks order, respective operations or treatments as well as a detailed action plan, allowing to optimize the production process as well as to adjust the organization accordingly. An additional advantage of VR is much faster and more effective training of production workers.

2.4. BigData

Huge amount of data necessary to conduct, mainly real-time processing and analysis, which is characterized by high diversity and complexity, requires the use of appropriate technologies. The BigData structure seems to be an essential element. The term BigData refers to the tendency to collect and process available data. In manufacturing companies, the use of BigData permits access to the machine's operating status, production volume, product quality, failure rate and equipment availability, which significantly translates into making good decisions.

2.5. Network connectivity

The network communication is basic to the capability of the Industry 4.0 idea. It is network connectivity, using wireless and internet technology, ensures communication between machines and devices, employees at various levels both at the level of production or the entire company as well as suppliers and distributors. Fast and undisturbed data exchange between users is the basis for the effective operation of the system and its autonomy. In the case of network communication, security of transmitted data should be ensured: industrial espionage, data theft or competitors' sabotage (Fig. 1.).

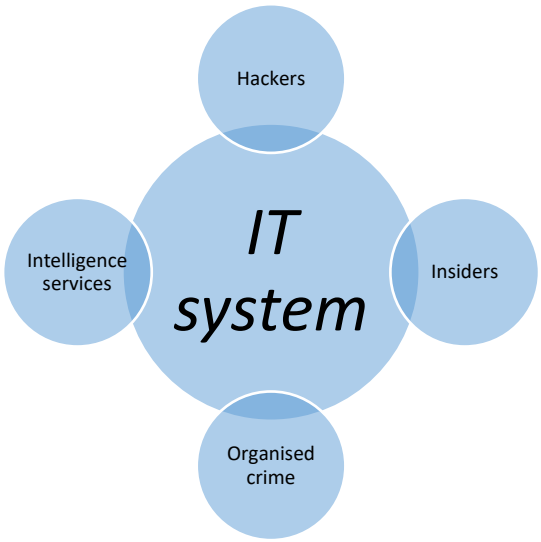

Figure 1: Security risks for Industry 4.0.

Figure 1 presents areas of potential risk in the concept of industry 4.0.

2.6. Smart Factory

Smart Factory translates to supporting of human resources as well as production machines and devices basing on the elements of the cyber-physical system and the industrial internet of things (Fig. 2). Similarly to CPS, machines and devices should be highly autonomous, which then enables the production of individual products according to individual customer's needs in the conditions of mass production. Moreover, in order to solve production problems, the elements of an intelligent factory should have free access to companies of a similar production profile. Free communication will enable data exchange at all levels of production resources (sensors, actuators, robots, conveyors) and "use of experience" in the pursuit of production optimization. An important element of an intelligent factory is the cloud computing technology. Processing of significant amount of data takes place on secure servers as part of services provided by an internal or external service provider (Grance, Mell, 2018).

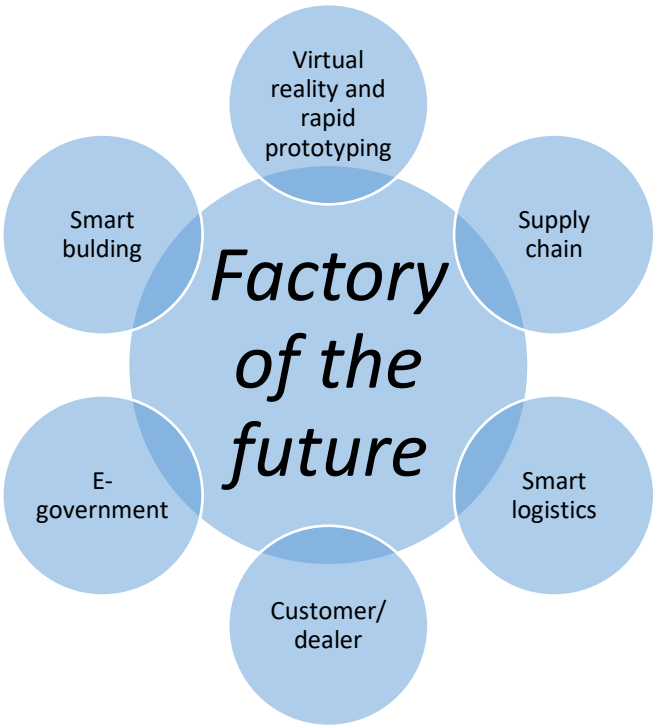

Figure 2: Factory of the future

3. PRODUCTION SYSTEM IN INDUSTRIAL DESIGN 4.0

According to the concept of industry 4.0, the combination of real machines and production devices, human resources and materials with a virtual area based on the Internet, causes that these elements automatically exchange all required information concerning the production. At the moment the customer places the order, throughout the processes of the technical preparation of production, production and delivery of the final product, the necessary information is available any time and anywhere in the company. Such networking and data exchange allows companies to win an advantage over traditional competition. Thanks to quick access to the information they need, they can respond faster to individual customer's needs, may accordingly prepare the production system both: technologically and organisationally, increasing its level of flexibility – in order to produce more economically. An enterprise that wants to maintain its position on the market should strive to increase production flexibility and to shorten the production cycle time, minimize energy consumption and resources, starting from the stages of initial design and production planning, as well as process engineering, marketing or after-sales services (Table 2).

Tab 2: The production system in the concept of industry 4.0 (http://przemysl-40.pl, 2018)

Flexibility and speed • Appropriation of products aimed at the customer • Efficient and scalable production resources, based on open standards, with a high degree of modularity • Easy production management of a high variety of products thanks to the integration of the production systems	Efficiency • Low volume production with the advantages of mass production • Optimized processes and stocks • High availability of production based on intelligent data analysis	Competitiveness • Low production costs • High innovative potential due to the combination of production and the IT world • Securing current locations of factories by increasing their competitiveness

Not only the ability to meet customer's wishes is an indicator of industry 4.0 changes in the enterprise's production system, but it is also improvement of social working conditions via full automation and robotisation of physical work. The necessity to shape and support career paths of technical and engineering staff, whose knowledge and experience will be decisive for a given company, is also of great importance. Fig. 3 shows an example of the FESTO production system according to the industry 4.0 concept. The system consists of two elements: a manufacturing and an assembly system. The manufacturing system consists of numerically controlled machines and devices. High level of automation of machines and devices allows to create the basis of intelligent manufacturing. The latest PLCs of machines are equipped with a link to the Internet and their high level of flexibility allows any configuration in a short time. However, the anxiety is caused by processes related to the manufacturing process itself, it means with the arrangement between a tool and a workpiece and the process of their exploitation. Currently, monitoring and diagnostic systems with different effectiveness are being built, however, intelligent prediction systems are expected from these systems with respect to the concept of industry 4.0. Intensive works are being carried out to build effective systems. A robot, which may be integrated with the machine tool or not - by the machine tool, was used to operate the production system. Mutual connection between the machine control system and the robot is not problematic and can be implemented using available CAD / CAM programs

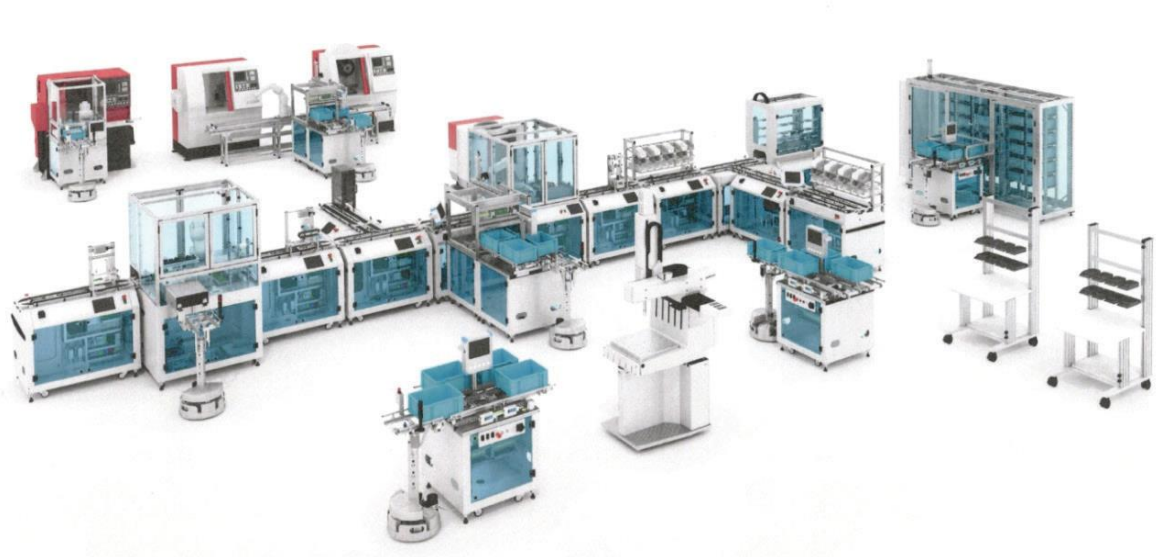

Figure 3: An example of the FESTO production system in the context of Industry 4.0 (festo.com/industrie4.0, 2016)

The assembly module in the presented example is complex. This operation is usually the last stage of the production process, which absorbs up to several dozen percent of time and production cost of the final product. The autonomous assembly system includes: assembly modules for automated and robotic operations, automated quality control modules, transporting robots, input / output logic modules along with buffer modules. The level of automation and robotisation of transport operations is high, similarly as in the manufacturing module. It should be noted that from the technical side, some parts of the production system are primed (or their level is high and easy to conform) to cooperate within the framework of the discussed concept. The IT system fares a bit weaker, especially software, because there is not a ready solution supporting the whole idea of Industry 4.0, but only some of its selected areas. Currently used standard products do not cope well with multi-parameter and complex issues. Products such as ERP, Access, databases or Excel are heterogeneous and have different user's interfaces, which makes their integration difficult to perform.

4. CONCLUSION

The considerations on the production systems future in manufacturing enterprises presented in the article are an introduction to changes in the enterprises themselves. Intelligent production, digital transformation, factories of the future, the fourth industrial revolution, industry 4.0 are concepts under which reconstruction is not only technical, technological, but also concerning employees' organizational and mental mindset reshaping. The implementation of "smart" elements into enterprises cannot happen quickly, but must be planned long-term. It is noticed that the implementation of the industry 4.0 assumptions in industry is not something that a manufacturing company is able to solve independently, it needs cooperation, integration and openness. It is supposed that this process will never end, because it is an activity prone to evolutionary transformation. Nevertheless, intelligent production is a necessary consequence of the ongoing digital transformation and the inevitable future. Customers' awareness of the possibility to purchase personalized products will make manufacturing companies provide well-fitted products. Sooner or later, enterprises will struggle with this problem. In addition, the challenge will be to provide these highly personalized products at the same price and same delivery time. Flexible machines and production devices will not be able to cope with the new individual products. In the future, the production system will have to be based on integrated activities of advanced controllers and intelligent sensors, intelligent information about the product and services, and the interaction between people and technological devices based on intelligent systems. The transformation of the stages of currently dominant technologies and production organizations, i.e. those developed by man for the sake of a computerized and internalized product, will be extremely difficult. A change in the production system in which this product will determine the manner and order of the equipment use, machines and production systems will contribute to proceeding from the linear production structure to a distributed, modular structure with global network communication. Full implementation of the Industry 4.0 concept may allow to achieve unprecedented levels of operational efficiency and accelerate productivity growth. New types of advanced production and industrial processes, integration and cooperation of both: machines and devices supporting human work will allow full flexibility of the company's production systems. The impact of the fourth industrial revolution, however, will be more extensive and will affect, besides production, also indirect departments, especially engineering processes. Future works related to the Industry 4.0 concept will focus on the operational aspects of production system elements and monitor their effectiveness in all characteristic areas, such as: agility of production, cooperation of executive systems, modularity, ease of programming and safety of use.

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COMPETITIVE ADVANTAGES IN MILLENNIALS' REALITY

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ABSTRACT

The high rate of technological development, faster communication, overload of economic innovations go hand in hand with generation change. We observe a huge change in social structures: new values -marginalized so far - reveal in business reality and become more important. The existing sources of competitive advantage of enterprises erode. The time has come to redefine the strategy and change the market modes of action to more adequate, tailored to the needs of the new generation of customers. The purpose of this article is to identify changes in customers' values and to bring closer the features of business models that may be the answer to these changes. The article is based on the concept of three authors: Kavadias, Ladas, and Loch (2016), who conducted an analysis of 40 selected business models in the area of management. The result of these analyses was the identification of six key success factors: a more personalized product or service, a transition to a closed-loop process, asset sharing, usage-based pricing, a more collaborative ecosystem and an agile and adaptive organization as the basic characteristics of a modern company. Basing on these findings, we present how customers' needs and behaviour is changing and the characteristics of a circular economy, which explain the need for modification of business models, and thus the strategy of modern enterprises. Furthermore, we match the generation's specific features/needs with features of transformative business models, which may be taken into a consideration by practitioners who would like to transform their business models.

Keywords: *agile organization, business models, circular economy, competitive advantage, millenials*

1. INTRODUCTION

In today's fast-developing world, new values are gaining in importance. Many authors and researchers (Hershatter, Epstein, 2010; Hartman, McCambridge, 2011; Kaifi et al., 2012) note very specific developments in the structure of societies, with values represented by new generations changing as well. This is the starting point for our reflections on the changes required also in the market. The economies of highly industrialized countries are also struggling with serious problems. We are witnessing an increasing macroeconomic imbalance in the largest economies of the world: the European Union, the USA, China, and Japan. This is compounded by many other social factors that increase uncertainty, thus hampering growth. These include: military crises, the immigration crisis in Europe, population ageing, the impoverishment of the middle class in developed countries. The resulting threat to the economy involves reduced consumer demand, lower economic growth and most likely increased unemployment in selected specializations. These phenomena are broadly commented on by both observers and scientists since their impact is not limited solely to the change in the demand structure in the world economy but extends to the reconfiguration of powers on the international arena and transformations in the political, social and management spheres. Although the path that the world is following is insufficiently defined in many respects, entrepreneurs have learned to adapt to changing business conditions.

Yet, the real challenge still lies ahead and comes from a completely different source: the generational change among the age group that is most desirable by many entrepreneurs, namely people aged 30–45. This article seeks to identify changes in values held by consumers – active market participants – and to provide some insight into the features of business models that may provide a response to these transformations.

2. A SHORT HISTORY OF GENERATIONS

In order to explain new phenomena, a broader context must be outlined and the background for the ongoing changes explained. Consecutive generational changes are a key factor here. We will briefly recall how generations that influenced management styles and business models have evolved in the previous and present centuries. The dates of generational changes are conventional and depend on the adopted perspective. Table 1 indicates simplified boundaries between demographic cohorts. Below the table, the generations are described in greater detail.

Table 1. The different generations in the workforce.

Generation	Date of birth
Baby boomers	1946–1964
Generation X	1965–1980
Generation Y	Born after 1980
Generation Z	Born after 2005

Source: Kaifi et al., 2012.

Baby boomers were born between 1946 and 1964. They have a strong position in organizations and authority, and believe in power and associated capacities. What is very characteristic of them is rigid corporate hierarchies with strong-arm management where building a career path involves climbing a steep ladder of development. Representatives of this generation appreciate independence. Their strengths at work encompass commitment, optimism and a global view of problems. Baby boomers rarely change jobs and positions. This cohort is dominated by patriarchy, which determines its values. It was then that the American myth "from zero to hero" was coined. Baby boomers feel uncomfortable in conflict situations, and are not used to receiving feedback. They may be reluctant towards their peers and put the process, not the result, first (Grzeszczyk, 2003). Generation X, which generally dates back to the second half of the 20th century (1965–1980), is said to have lost its purpose. Societies got lost in the chaos of everyday life. The X symbol means the unknown. However, Generation X includes mature, reflective employees. They are loyal to employers and trustworthy. They appreciate such values as personal development, independence, diversity and diligence. Unlike baby boomers, they are focused on results, not the process itself. Although "Xs" are familiar with technology, use computers and smartphones, they most trust in face-to-face contacts and paper archives. Representatives of Generation X are often sceptics and pessimists. They tend to distrust their bosses. They treat mistakes as personal failures. It is more difficult to find multitaskers among them (Calhoun, 2005). The modern Millennial generation – born in 1980–2000 – is the typical Generation Y with its many contradictions. On the one hand, these are self-confident people displaying multiple entrepreneurial competences, but on the other hand they too easily exhibit self-admiration and selfishness. They are appreciated for the ability to split attention, excellent orientation in the internet environment and faith in their own capabilities. Simultaneously, they irritate employers by their irresponsibility and disloyalty, disrespect for authorities, and cunning. They do not get attached to organizations for a long time and leave their jobs with ease and without sentiment. Hence such large discrepancies in cultural values in relation to

previous generations (Zemke, Raines, Filipczak, 2000). From the market perspective, this cohort is very price sensitive. This is the result of a specific lifestyle – many representatives of this generation live with their parents; therefore, they do not need their own flats or other resources (they do not accumulate capital). At the same time, they value free time, often spend it on entertainment, care about the environment, like technical innovations that they prefer in a personalized form. Management science researchers and practitioners representing the business world are now focused on Millennials because they are just entering the market and form huge potential workforce, while being a vast group of consumers. For clarification, however, we will also mention Generation Z – people born after 2005 (or after 1990, according to some sources) who are characterized as adoring everything that has an "i" its name (iPod, iPhone, iPad). Literature also mentions Generation C derived from "connect, communicate, change" referring to the internet, communication and readiness to change. These words are a good description of the youngest employees, today's twenty-somethings. They hardly remember the times before the internet era or Poland's entry into the European Union. They are said to be open to new solutions and creative. Meanwhile, the boundary between the virtual and real world is blurring, and they equally appreciate close friends and those from social media. Representatives of Generation Z have problems with concentration, and it is difficult to keep them in one place for a long time. They also analyse and assess situations superficially and are uncertain about their future. We believe that generational changes largely determine modifications in effective business models. Millennials represent a different, new consumption structure, forcing enterprises to respond. What matters to business is such characteristics of the new generation as a lack of investment in capital. Millennials rely on hired or borrowed resources rather than on accumulated capital, as previous generations did. They also save less money than their predecessors. They rather value free time and independence to which attachment to money is only an obstacle. They spend less money too as they have lower amounts of it but also frequently refrain from starting families (they live with their parents), so they have no one to spend their money on. At the same time, they are a very demanding customer group since they require very personalized products and services. They are sensitive to environmental problems, and choose companies with the dominant value of environmental protection even at higher costs. They are eager to use technological innovations very broadly, buy goods and services online, and use electronic platforms (Myers, Sadaghiani, 2010).

3. HOW GENERATIONS INFLUENCE ECONOMY

Transformations in consumer behaviour resulting from generational changes must also affect the configuration of corporate business models. The existing operational methods are less and less responsive to the needs of the new demographic cohort entering one of the most attractive segments of customers – those aged 30–45. The operation of traditional, linear business models in accordance with the principle "take-make-dispose" seems to be a dead end (Ellen MacArthur Foundation, 2013). In response to the system of values and requirements of new generations, concepts are being developed that concern not only a single industry but the entire economy. Circular economy is currently becoming the mainstream which supports solutions compliant with the new 3Rs rule (reduce, reuse, recycle). According to it, enterprises and national authorities should strive to limit wastage in economies (e.g. drinking water consumption), extend the life cycle of already manufactured products and process those that cannot serve their original purposes (the so-called zero-waste strategy). Thereby, the ecological footprint, that is the negative impact of economic activities undertaken by new generations, is to be significantly reduced (Rosiak, Postuła, 2017, p.531). For years, the European Commission has been working on legislative solutions supporting actions for the circular economy (www, 2018). The research forming the basis for these works suggests that the implementation of the circular economy idea can let European businesses save up to EUR 600 billion. It seems that the optimism of the EU

central authorities is not excessive. As The Independent (Sheffield, 2016) reported, the scale of the recycling industry in Sweden is already so big that the country must import waste to ensure the operation of its waste processing sector. It turns out, therefore, that new concepts are not only a requirement of strict environmental standards but also a great opportunity that economies can seize (Rosiak, Postuła, 2017, p.532). The added value of this transformation can be created because, among others:

- business may use cheaper raw materials sourced from already manufactured products,
- it is possible to become independent from (raw) materials that were previously imported,
- the development of modern industries creating new, eco-friendly materials is supported.

To summarize the above, it can be concluded that nothing special is happening – enterprises should be able to identify the expectations of their customers and modify their business models accordingly. This aspect – skilful adjustment of value for the customer as a source of strategic advantage – was noted by Tracy and Wiersema (1993). They distinguished three sources of strategic advantage in this respect: Operational Excellence, Customer Intimacy and Product Leadership. These can be said to be somehow similar to the proposal of M.E. Porter, who assumed that a strategic advantage could also be achieved in three ways: cost leadership, differentiation and focus strategy (Porter, 1985). Chan Kim and Mauborgne (2005), in their bestseller entitled "Blue Ocean Strategy", sought the sources of a strategic advantage by referring directly to the concept of business model. Like Tracy and Wiersema, they pointed out that the key to achieving an advantage should be a better, innovative configuration of the value proposition. If one wished to follow the blue ocean path – in other words, to create a market space with a limited importance of market competition – one should, in a simplified way, consider which of the existing elements of the business model were to be eliminated and which were to be added. The dynamism of the environment resulting from, inter alia, technological progress means that today's generations pay attention to other aspects of company operations than their parents or grandparents did. This implies that the hitherto strategic advantages may be eroding and should be supported by additional factors that better meet the requirements of contemporary consumers. For the Millennial generation, it is not only the product or the quality of customer service that matters but also, for example, the time required to buy a specific product which could be spent otherwise or the aforementioned environmental aspects. Put simply, they might be said to expect products that are:

- tailored to individual tastes (personalization),
- manufactured with respect for the natural environment,
- fashionable, trendy (also technologically),
- easily accessible (time-saving),
- low-priced.

These guidelines mean that meeting the expectations of new generations requires profound transformations of the existing traditional operational methods. Fortunately, there are some hints that can help reconfigure business models and adjust them better to the needs of the new generation of customers.

4. FEATURES OF TRANSFORMATIVE BUSINESS MODELS

Kavadias, Ladas and Loch (2016) reviewed 40 selected business models in the popular press in the area of management. Their research shows that all these models have the potential to change organizations, yet only some can succeed. These analyses resulted in the identification of six key success factors. No organization displays all six features, but some of them frequently occur simultaneously as they are interrelated.

4.1. A more personalized product or service

New business models give the opportunity to offer products more tailored to individual needs, often at competitive prices. Higher, a Polish company founded by graduates (Faculty of Management, University of Warsaw) a few years ago, connects two worlds: the academic community where they source young talent and the world of business. The company's philosophy is to match the DNA of job seekers to the DNA of enterprises that they support in recruitment processes. According to the company's employees, the key to the success of any organization is its ability to adapt to market changes quickly and flexibly, the ability that they also use in their work. And efficiency and ability to develop are possible thanks to motivated staff aware of the goals and tasks, which they show in action.

4.2. Closed-loop process

In many models, the traditional linear consumption process in accordance with the take-make-dispose principle is being replaced by a closed-loop process whereby the products used are recycled. It is, therefore, one of the key elements of the circular economy. The closed-loop process also forms an integral part of the concept of closed-loop supply chains. This idea assumes that producers of goods will collect used products from their customers and, after appropriate sorting and categorization, will be able to use them in one of the following ways: reuse (if possible), repair, regeneration, recycling or final disposal (Guide, Harrison, Van Wassenhove, 2003). There are many companies selling, repairing or recycling used products. However, there are few producers that are now able to implement the closed-loop process in a financially efficient manner. Those who will manage to do this will certainly gain a competitive advantage over other players in their industry. The construction of a closed-loop process would not only allow responding to pro-environmental requirements of an increasing number of consumers but also capturing the additional value of already manufactured and sold products.

4.3. Asset sharing

New models are based much more on asset sharing than asset accumulation. Airbnb relies on existing assets – flats that are made available to travellers. Similarly, Uber uses cars of their owners. As suggested by the examples above, internet platforms referred to as marketplaces play an important role in such models. They match both parties: owners receive a payment for renting their flats and hirers are offered lower prices and often more pleasant and comfortable (home-like) conditions. This model significantly reduces barriers to market entry in many industries as it radically cuts costs because own assets are not required. Therefore, intermediation is a typical form of activity in this model.

4.4. Usage-based pricing

Under some modern models, the price is calculated for the customer based on the time spent using the product, and not necessarily on its total purchase. An example is iTunes, which charges a fee for the number of songs listened to without the need to buy them. Customers thus only pay for what they actually use, and the company attracts a potentially larger group of clients.

4.5. A more collaborative ecosystem

Some innovative solutions are effective because new technologies make it possible to improve cooperation throughout the supply chain, offering greater control over business risk and reducing costs. In this case, shared databases may be useful since they shorten the time to update the variables needed for each partner, as may be various applications that facilitate, for example, work on joint projects.

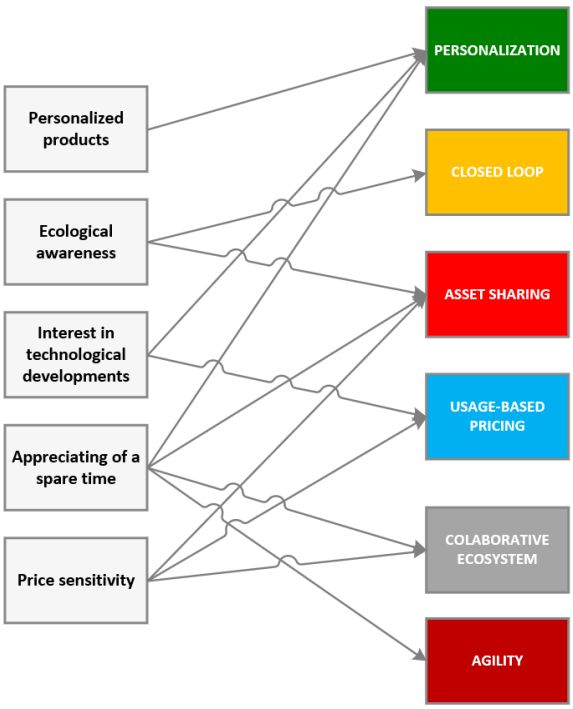
4.6. An agile and adaptive organization

Entrepreneurs sometimes take advantage of modern technologies in order to shift from traditional hierarchical decision-making models to decision-making that better meets market needs and allows better adaptation to change. The result is usually more value for the customer and a lower cost for the company. The key to success in this respect is the appropriate integration of large data resources within the company and their analytics (Big Data), the use of artificial intelligence (AI) and machine learning. Basing the business on the indicated factors requires considerable capital resources needed for investment both in staff and in IT systems. Nevertheless, the benefits of using selected elements may appear to be spectacular. In this context, what must be mentioned is the pioneering company Amazon, which currently has over USD 100 billion in revenue and ranks 44th in the Fortune Global 500 list of the largest global companies (www, 2018). Amazon began with relatively simple functions informing users what other people who had previously searched for a given item had bought. From today's perspective, this seems to be a fairly unsophisticated application of Big Data analytics. In order to imagine how far we can get with the analysis of large data resources, it is, however, sufficient to look at Amazon's latest patents that allow goods to be sent to the right place on Earth before the user officially makes an order. Thus, delivery times are extremely short, and customers do not have time to verify alternative offers in retail chains.

5. THE MILLENNIAL GENERATION AND THE FEATURES OF TRANSFORMATIVE BUSINESS MODELS

We agree with Kavadias, Ladas and Loch that a more permanent competitive advantage will be achieved by those enterprises that will be able to incorporate more than one of the above features in their models. It is important, however, to know which of them responds to which characteristics/needs of the Millennial cohort. To this end, we have developed a proposal to match the features of transformative business models and the characteristics of the new customer group.

Graph 1. Millenials' needs vs features of transformative business models



Source: prepared by the authors

The above diagram presents which features of transformative business models meet the needs of Millennials. Focusing on less obvious links, we argue that a closely collaborating, properly configured system can ensure that customers are offered lower prices and time savings due to, for example, online sales (no need to visit brick-and-mortar stores and look for goods there). In turn, business models based on asset sharing respond to the needs related to environmental protection (asset sharing may result in lower production needs) and price sensitivity. At the first glance, it may be quite difficult to find the link between personalization or usage-based pricing on the one hand and the customers' interest in technical innovations on the other. Yet, we believe that models that have at least one of these features usually also make it possible to offer new, non-obvious and interesting characteristics related either to the product itself or to the shopping method customer experience. It may concern user-friendly interface of an application or online store, quick, safe and easy methods of payments, wise product recommendations which facilitate shopping for customers and cross selling for business etc. This, in turn, directly responds to the "technological curiosity" of Millennials and is an additional value proposition. This diagram can be used as a first attempt to business model reconfiguration according to the needs/requirements of the new generation of customers. The crucial issue to be solved at that point is the proper recognition of customers' needs and their characteristics. Once they are known managers should decide which of the transformative business model features correspond them best. If this matching is done correctly, possible competitive advantages may be generated.

6. CONCLUSION

Generational change occurring in the most lucrative group of consumers may well be referred to as revolutionary. The attempts to reduce the ecological footprint, no need to possess, shortened delivery times or resort to modern technologies to replace used goods make companies face a dilemma similar to combining water with fire. More importantly, these changes do not only concern modern products. The features of modern business models may also be incorporated by producers of traditional goods, e.g. clothing. The significance of the current breakthrough is that it also changes the existing rules of competition. Smaller enterprises are being given a chance, and their agility, innovativeness or better understanding of customer needs (uniqueness) allow them to develop a new, more interesting alternative to well-known old players. The key to success is, therefore, seizing the opportunities offered by the change that we are witnessing and adjusting business models accordingly.

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THE LEVEL OF PSYCHOSOCIAL RISK IN ACADEMIC PROFESSIONALS WORK - DIFFERENTIATION AND SELECTED NEGATIVE OUTCOMES

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ABSTRACT

Stress experienced at work has been a growing problem not only for individuals, but also for their organizations. Having recognized that in the face of the changes that have recently affected Polish universities, this problem may also concern academic staff, the aim of the article is the evaluation of work strain among this occupational group, identify differentiating variables and assess the interdependencies between the perceived strain and selected negative outcomes (NO). On the basis of research conducted on a sample of 340 academic staff, a low level of strain with job content and a medium level of strain with job context were found. At the same time, 27% of the respondents pointed to the existence of such pathologic behaviours as workplace bullying, aggression or discrimination. Gender and objective workload rates have considerably differentiated the level of stress experienced due to the risk factors related to the content and context of work. Work strain significantly correlated with the negative consequences, and the Pearson correlation coefficient was 0.34 for work content and 0.30 for work context.

Keywords: *job demands-resources model, psychosocial risk, work content, work context*

1. INTRODUCTION

The ever-changing working conditions, such us growing globalization, advances in information and communication technology, and new types of contractual and working time arrangement are increasing the pressure placed on both employers and employees to remain competitive. Many of these changes affects different professions and may increase psychosocial risks, which can lead to negative individual and organizational outcomes (EU-OSHA, 2014). The adverse results of stress are experienced by workers, organizations employing them, and, in an even broader context, the whole societies. As Brun and Lamarche observed, the costs of workplace stress can be measured from different angles, using different indicators (Brun & Lamarche, 2006). This paper focuses only on individual costs, such as a lack of loyalty, low level of work satisfaction and work insecurity. The selection of the above-mentioned aspects was connected with the fact that these variables have a profound significance for the shaping of the general wellbeing of workers and they are related to negative results experienced by both workers and their organizations. The subject of the conducted analysis were members of academic staff employed by public and private Polish universities. The selection of this group was not accidental, since there have been a number of changes in the legal and organizational conditions of the functioning at universities as places of work, which definitely contributes to the experienced stress. At the same time, apart from a handful of available publications (see: Kwiek, 2012, 2015) there is a limited body of work allowing a reliable evaluation of the level of work strain experienced by this professional group. The purpose of this paper is first to evaluate the level of psychosocial risk (work content, work context and pathologies) in a group

of Polish academic staff and in the next step to investigate the relationship between the level of psychosocial risks at work and selected negatives outcomes.

2. THEORETICAL BACKGROUND

2.1. Psychosocial risks in academic work

The contemporary European universities function in the context of two opposing paradigms of thinking about the mission of science and higher education (Kwiek, 2017). The traditional paradigm refers to the model of the Humboldt University, which emphasizes autonomy, elitism and community as the essential values of universities. On the other hand, political and economic systems expect that pragmatic values related to research and education of students be implemented and measurably applied in the knowledge-based economy. This other paradigm has been intensively implemented at the Polish universities at least since the reforms of 2009-2011, and subsequent significant changes are planned to be introduced in the coming years (Kwiek, 2017). Major changes occurring in the external conditions translate into the functioning of universities on all levels, including the psychosocial functioning of their employees. The transformations apply to working conditions, professional situation and professional identity of academic staff. It can be stated that in this area change is a permanent feature of the work environment induced by specific five drivers: "massification of higher education, expansion of research, growing emphasis on the societal relevance of higher education and research, processes of globalization and internalization, policies and practices towards marketization and managerialism" (Enders & De Weert, 2009, p. 253). Therefore, all the dimensions of academic work become redefined: the freedom of research and free management of working time become reduced, and so is professional and employment stability. Salaries, on the other hand, remain relatively low when set against those of comparable professionals from outside the university. (Kwiek, 2017). Therefore, empirical data from research conducted in 11 European countries are not surprising. It is evident that about one-sixth of academics would not opt for the academic profession if they had a choice again (Kwiek & Antonowicz, 2013). The dynamic social, legal, economic and technological environment, which requires constant adaptation creates demanding working conditions at the university. This, in turn, has a significant impact on the professional roles of academic staff. Typical areas of professional activity, i.e. conducting research, educating students and organizational activities are transformed both in terms of quality and quantity. Conducting scientific activities is linked with the need to acquire funds from a limited pool and compete to publish in high-ranked journals (the saying: 'publish or perish' is widely known in the academic world). Due to the mass scale of academic-level education and the burdens resulting from it, academic staff (including in particular the most numerous group, PhD degree holders) say that they have "no time left for research" (see Kowzan, Zilińska, Kleina-Gwizdała, & Prusinowska, 2016) due to excessive teaching, organizational and administrative duties resulting from the changeability of curriculums, lack of stability of subjects taught, as well as adverse staff to student ratio, excessive reporting, and finally, autocratic relations between senior and junior academics. All of this results in relatively low productivity in academic terms (Kwiek, 2015) and intensifies the stress related to promotion and employment insecurity. It should be emphasized that promotion and greater employment stability result from scientific and research achievements, and not from involvement in education or organization, however the distribution of time between particular roles leads to neglecting the scientific aspects, deepening the frustration associated with the failure to pursue one's scientific interests and commitments in a satisfactory way. An academic career consists in obtaining subsequent academic ranks and titles, and scientific advancement is rewarded with functions and positions, including the most prestigious ones (Schmidt, 2017). During the academic year, many of university staff do not have enough time for consistent scientific work, therefore it is a common practice to do it in the period off classes at the

university, namely during summer holidays (Kowzan et al., 2016). However, such a practice may interfere with the needs typical of free time, i.e. those personal and those connected with family, which further deepens the imbalance between professional and private life. With reference to the above characteristics of psychosocial threats present in the academic work environment, two hypotheses have been put forward:

- H1: academic staff experience a higher level of work strain resulting from the context of work (due to, among other factors, insufficient time to do research, job insecurity, feudal relations) rather than the content work (i.e. conducting research, working on publications, supervising students).
- H2: the factors differentiating the level of work strain are: the level of academic rank (junior academics will experience a higher level of work strain than senior academics) and gender (due to social roles in the family, women will experience a higher level of strain compared to men).

2.2. The significance of the demands-resources relationship

One of the key theories pointing to the negative consequences of work strain resulting from the improper relationship between a worker and his/her environment is the "demands - control" model by Robert Karasek (1979). Karasek focused on building well-being by means of referring to the relationship between the demands set in the workplace and the worker's sense of control. The demand - control model assumes that as a result of excessive work strain and a low sense of control (resulting both from insufficient competences and lack of decision-making), the worker experiences negative outcomes (Karasek, 1979). Although researchers initially focused on the negative health effects, it was shown that the demand-control relationship is also important for overall motivation and job satisfaction (Pelfrene et al., 2002). In the course of further work on the "demands - control" model, it was noticed that there is another important area: social support on which an employee can receive in his/her organization (Karasek & Theorell, 1990). According to the concept, it can be expected that organizational or social support provided by an organization will contribute to the improvement of the employee's well-being (Grant, Christianson, & Price, 2007). The assumptions of Karasek's model are in line with the model developed by Demerouti and others (2001) concerning the shaping the relationship between job demands and an employee's resources (Job Demands-Resources model JD-R) (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Unlike the JDCS model, it integrates the sphere of control and support, develops the number of factors relevant to the perceived work strain and, to a greater extent, distinguishes two directions of influence: pro-health and pro-motivation. Based on numerous empirical studies conducted on occupational groups, it has been proved that (Bakker & Demerouti, 2017):

- every element of performed work can be included either in resources or in job demands,
- the availability of resources boost commitment, and high job demands lead to stress, exhaustion and other negative consequences,
- at the same time, the availability of resources may, to a certain extent, reduce the risk of negative consequences related to work strain,
- in the situation of the availability of resources, high demands may also be motivating,
- similarly to the resources provided by the organization, also the internal resources of the employee (e.g. their self-esteem or personality traits) help them to cope with job demands,
- and, what is most important from the point of view of the organization's functioning - the increase in motivation increases work efficiency, while the feeling of work strain reduces it.

The above relationships are illustrated in Figure 1:

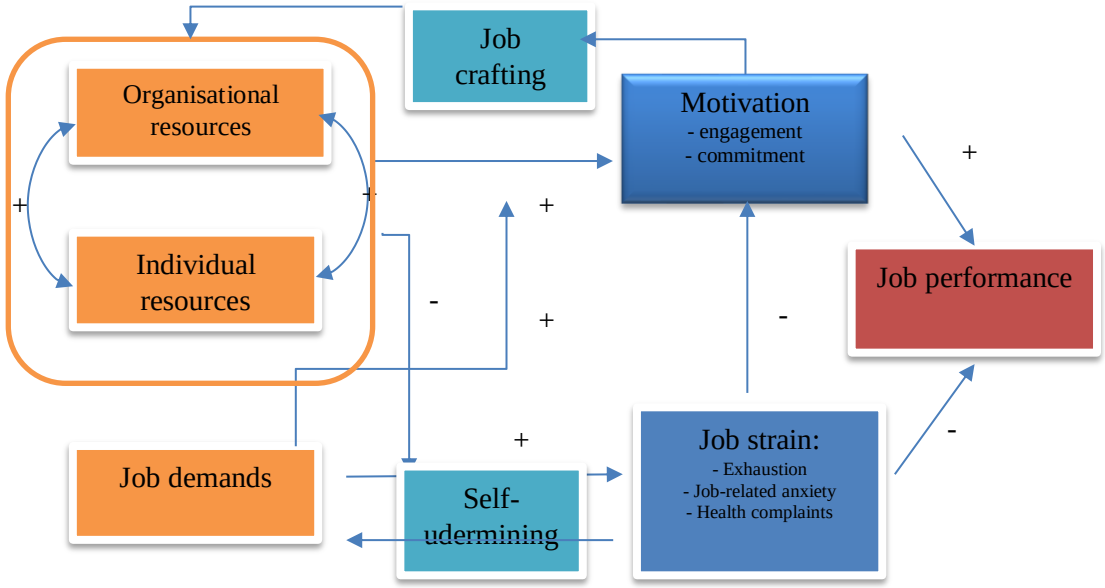


Figure 1 Job Demand-Resources Model (Bakker & Demerouti, 2017 p. 275)

Due to the fact that it is difficult to indicate the measure of an academic's efficiency, in the empirical research the focus was on such variables as satisfaction or intention to quit, which are not only easier to measure, but are also related to work efficiency (Judge, Thoresen, Bono, & Patton, 2001; & Yi, 2012) Based on the above model, treating the strain with work content as a measure of demands, and strain with work context as a lack of organizational resources, the following research hypotheses were put forward:

- H3 there is a significantly positive relationship between the perceived work strain and selected negative consequences. At the same time, similarly to the JD-R model, it was assumed that particular types of strain differ in their relationship with particular negative results.
- H4: Strain with work context and with pathologies shows a stronger relationship with satisfaction, while strain with work content shows a stronger relationship with the intention to change the job and leave the organization.

3. RESEARCH METHOD

The research was quantitative and it was carried out in the second half of 2017. Data were collected by means of an online questionnaire. In total, about 1200 invitations to participate in the study were sent out, addressed at the employees of various universities and departments from all over Poland. 340 correctly completed questionnaires were returned. The sample was dominated by women (59%), PhD degree holders (see Table 1), the average age of the respondents was 42.

Table 1: Structure of the studied sample (own study)

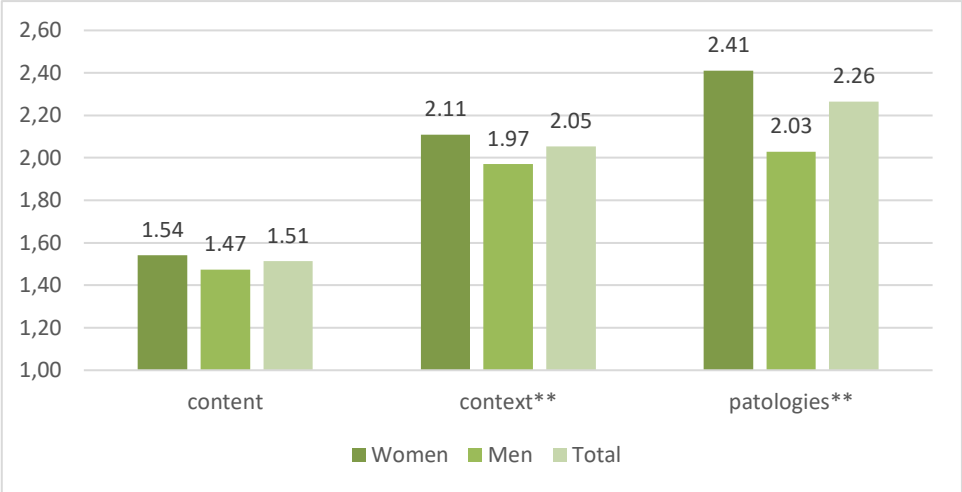
		Gender:		
		Women	Men	Total
Academic rank	MA/MSc; MSc Eng.	36	21	57
	PhD, PhD Eng.	112	67	179
	DSc, DSc Eng	43	35	78
	professor	8	18	26
	Total	199	141	340

The questionnaire consisted of a few research tools[1]. In order to verify the hypotheses put forward in this paper, two tools were used. The first of them - Psychosocial Risk Scale (SRP) was developed by Mościcka-Teske and Potocka (Mościcka-Teske & Potocka, 2014) as part of a project on psychosocial risks in a EU-co-financed project. It contains three factors: work content, work context and pathologies. Work content includes 14 items describing such elements as work environment and equipment, task design, workload and work schedule. Work context consists of 28 items relating to: organisational culture and function, role in organization, career development, decision 'latitude' and interpersonal relationships at work. Pathologies include 8 questions relating to aggression, mobbing and discrimination. In conducted research the Cronbach's alpha coefficients were 0.918, 0.986 and 0.984 respectively for the described scales. In all the questions respondents answered whether a given factor occurs in their work environment, next they assessed the degree to which a given factor is stressful to them on a scale from 1 to 3. The level of perceived stress analyzed in this study is calculated only in relation to the occurring factors and it can assume values from 1 to 3 for each scale. To measure negative outcomes (NO) a scale consisting of fours items was used relating to: low level of overall satisfaction at work, intention to leave organization, intention to leave the profession and lack of security. The Cronbach's alpha factor for NO was 0.776. Questions relating to NO were formed in the five-point Likert scale from 1 - I completely disagree to 5 - I completely agree.

4. RESEARCH RESULTS

Analyzing the results of the obtained tests, the level of perceived stress related to a given group of factors in the examined professional group was assessed. The results showed that the average result of perceived strain relating to work content was 1.51, which, according to the norms provided by the authors of the tool is not much (82% of the respondents rated the level of perceived stress of the work content as low or very low). Therefore, it can be stated that even if there is strain related to the nature of tasks or physical working conditions in the work environment, these factors are not perceived as stress-inducing. The situation is slightly different in the case of subjectively perceived strain with workload and pathologies: in this case, the level of strain was on an average level, so it was very similar to the strain experienced by employees in other industries. It is worth emphasizing that neither work experience nor the level of academic career advancement differentiated the level of perceived stressfulness. Only in the case of gender, it can be observed that women experience a higher level of stress due to the factors related to the context of work and pathologies (Figure 2). It is worth emphasizing, however, that the result in the area of perceived strain of work content and context was differentiated by objective indicators of workload. The difference between academics who did not exceed 250 teaching hours during the academic year and other employees was significant on the level $p = 0.003$ for content and $p = 0.026$ for context. However, the difference between employees working up to 40 hours and over 40 hours in a typical week was $p = 0.001$ for both scales. The above fact confirms that the subjectively perceived level of stress measured with the SRP tool is related to objective workload. In the case of pathologies, no significant differences were observed.

[1] The presented research was part of a larger project “Stress, Professional Burnout and Chronic Fatigue as Negative Consequences of Excessive Work Strain - Diagnosis and Prevention among University Teachers" carried out under the supervision of Dr. Agnieszka Springer and financed with funds from the specified-beneficiary subsidy for statutory activity of Finance and Banking Department of Wyższa Szkoła Bankowa in Poznań in 2017.



*** statistical significance of differences p<0.01*

Figure 2: The level of perceived strain of factors according to gender (own study)

Taking into account the above results, H1 should be accepted saying that academic staff experience a higher level of strain caused by the context of work rather than by its content. At the same time, the results obtained in the area of the strain caused by the context of work allow for the partial acceptance of H2. The variable which differentiates work context strain is gender. According to this hypothesis, women experience a higher level of strain related to the context of work than men. At the same time, the part of the hypothesis should be rejected, which assumed that another factor differentiating the experience of work context strain is the achieved academic rank. Therefore, the perceived strain of the work context factor is not differentiated according to academic rank. However, for an organization not only the level of perceived stress is significant, but also whether this level is connected with the occurrence of negative consequences. In the case of the surveyed professional group, a statistically significant relationship was found between the level of work content and context, and the negative consequences (Table 2). There was no significant relationship between pathologies and NO. Nevertheless, the NO level was significantly higher (p = 0.000) among those who perceived pathologies in their work environment in comparison with those who did not notice such phenomena.

Table 2: Pearson correlation coefficient between results on SRP and NO scales (own study)

	Work content	Work context	Pathologies	NO
Work content	1	0.555**	0.307**	0.349**
Work context		1	0.573**	0.301**
Pathologies			1	0.021

The relationship between the results may be characterised by means of multiple regression, in which the dependent variable were negative consequences, and independent variables – the level of strain with work content and context.

$Y = 2.42 * X_1 + 1.55 * X_2 + 4.46$ R^2=0.13 p=0.001

Where Y- level of negatives outcomes X_1- level of work content strain X_2- level of work context strain

The calculated regression model indicates that both content and context of work contribute to the increase in NO, but the content of work is fairly larger in this regard. Although the result on the scale of pathologies had no significant relationship with NO, its level was significantly higher ($p = 0.000$) among people who noticed the occurrence of pathologies in their work environment compared with those who did not notice pathologies. Therefore, what is significant to the increase in the risk of negative consequences is not negative feelings connected with observing pathological phenomena in the workplace, but the sole fact of their existence. The above results make it possible to accept the third of the research hypotheses put forward, which suggested a relationship between the stressful character of content, context and pathologies at work and the occurrence of negative consequences such as a lack of satisfaction, feelings of insecurity, or the intention to leave the profession or organization. Considering the individual variables, the analysis of Spearman's rank correlation coefficient did not reveal any significant differences in the strength of either the relationship between various negative consequences and work content, or between negative consequences and work context[2].

Table 2: Spearman's rank correlation coefficient between results on SRP scales and a lack of satisfaction and loyalty, the intention to leave the profession and the organization (own study)

	work content	work context	pathologies
intention to leave profession	0.308**	0.305**	0.144
intention to leave organisation	0.275**	0.215**	0.014
lack of satisfaction	0.288**	0.249**	-0.042
lack of security	0.231**	0.262**	0.113

The above findings do not allow the acceptance of H4, which said that the perceived stress of work content and context would show a different relationship with the analyzed negative consequences.

5. CONCLUSION

The conducted analysis indicates that the main source of stress is the context of work. Strain with the content of work turned out to be surprisingly low, which, according to the authors, may result directly from particularly rich personal resources of the surveyed professional group. Personal resources are important primarily for the perception of tasks and noticing one's ability to cope with faced demands (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007, 2008). It can be assumed that an academic career is pursued by individuals who are driven by curiosity, motivated to work creatively and in a non-standard way, which guarantees a lifetime of professional and personal development. This attitude is consistent with the specific character of academic work, which allows pursuing professional and personal ambitions. Such an interpretation of the content of academic work refers to traditional academic values stemming from the idea of the Humboldt University and it is a part of the resources possessed by university staff. At the same time, however, the low results on the scale of strain with work content raise certain methodological doubts related to the accuracy of the applied tool. These doubts are related to the fact that more than half of employees perform more than 250 teaching hours per semester, and the time they devote to work is 47.8 hours per week on average, which is objectively high workload. Perhaps, in spite of the fact that the used questionnaire was verified in various industries, it does not include the variables diagnosing work strain which are relevant to the situation of academic workers.

[2] To evaluate the significance of differences, Williams's T2 statistic was used, which tests whether two dependent correlations that share a common variable are different.

Considering the above-mentioned doubts related to the research results, in further stages of work, there is a plan to focus more on individual resources and their role in dealing with job demands, as well as attempting to develop a tool dedicated to this particular professional group. A higher level of stress connected with work context was obtained in the group of women, which, just like in the literature on the subject, indicates significantly higher stress levels in women employed at universities (Catano et al., 2010; Winefield, Boyd, Saebel, & Pignata, 2008)). This result is not surprising considering the fact that women are less likely to be promoted above the PhD level, and therefore they are more likely to work under pressure related to receive promotion and to remain employed. Another factor is the fact that most women in academia remain the primary caregivers in their families and have additional household responsibilities (Catano et al., 2010). Work context strain did not differentiate the examined sample in terms of the place in the academic hierarchy, which means that employees located higher experience less work context strain than their younger colleagues who are frequently their subordinates. To explain this, one can refer to new responsibilities brought by academic promotions, related to management, leadership, consulting or quality assurance (Schmidt, 2017). Modern universities need competent and effective managers, regardless of the development of their academic career. As a result, the posts and functions related to development of academic career may be stressful due to the competence gap. And, last, but not least, the transformation of the entire higher education system and institutional and social tensions resulting from it equally affect the entire academic world. (Kwiek, 2017). The strain caused by both content and context of work is related to negative consequences, such as lack of satisfaction and lack of sense of security, or intention to leave the profession or organization. The above result is consistent with other analyses conducted in this area (George & Zakkariya, 2015; Spector & Jex, 1998; Yang, Che, & Spector, 2008). However, there were no differences in the significance of content and context of work for the occurrence of negative results. The obtained results justify undertaking stress management actions by organizations (Cox, 1993). Identifying the main factors that negatively impact upon the wellbeing of employees, and, consequently, upon the functioning of organizations is not only desirable, but even necessary in a situation of growing threats posed by psychosocial factors in the workplace.

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FOREIGN VERSUS LOCALLY-OWNED COMPANIES: AN ANALYSIS OF POST-CRISIS PERFORMANCE IN EASTERN EUROPE

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ABSTRACT

The 2009-2014 period was not an easy one for the companies from Central and Eastern Europe. Faced with the effects of the economic and financial crisis and the recession that affected the European Union, they saw themselves in a situation where the very good performances recorded in 2007-2008 decreased substantially, as shown by the main business indicators – such as turnover, value added or gross operating surplus, to name just a few. Still, there were significant performance gaps between the operations of foreign-owned and locally-owned businesses in the region, with marked differences among countries, typically in favour of foreign-owned companies. Our research, based on data collected from the inward FATS – Foreign Affiliates Statistics of Eurostat, sheds light into these performance gaps in CEE economies. Our results show that a performance gap between the foreign- and locally-owned companies is prevalent in these economies, but also that domestic companies enjoyed higher annual growth rates after 2009 compared to their foreign-owned counterparts, which corrected to some extent this gap. Overall, our novel analysis supports the idea that the economies in the region have largely benefited from the activity of foreign-owned companies, although with nuances from one country to another. Moreover, locally-owned companies should engage more in the learning process from the former.

Keywords: *Central and Eastern Europe, Foreign direct investments, Foreign ownership, Performance analysis*

1. INTRODUCTION

The impact of foreign direct investments (FDI) on host economies represents one of the most vivid debates in the academic literature in the past decades. The results so far have failed to demonstrate that this impact is only positive, but the general opinion on the foreign presence in a host economy is currently more favourable to the competitiveness and growth generating effects of FDI rather than its negative impact (Belascu et al., 2017). However, the effects of FDI in host economies depend on many factors, such as the nature and characteristics of the sector where foreign-owned companies are present, the time period in which the impact of foreign investment is analysed, the type of foreign activity (i.e. greenfield, joint venture with a local firm, takeover of a local firm, etc.), the strategies of multinational firms, but also the strategies of host country governments towards FDI. In general, the impact of FDI on host economies can be a direct one, driven by the investments made by multinational companies in companies created or taken over in host economies, or an indirect one, through the positive exposure of local companies to the activity and business practices of foreign companies, including here even companies that are not the direct beneficiaries a transfer of capital and technology from foreign-owned firms. The direct impact of FDI starts at microeconomic level, from the financial capital provided by the multinational firm and through the transfer of technology and innovation by exposing local firms to a set of management, marketing and entrepreneurial skills that were initially missing or underdeveloped, but also by the development of human resources (not just raising salaries or incomes, but also through training programs, including here the acquisition of new jobs and skills). At this level, the effects of FDI can be seen in an increased performance of foreign-owned companies from the host economies, both from the perspective of their competitive position on the market, but also from the business

practices promoted by them, different in positive sense from the previous ones. From the microeconomic level, the effects of the FDI presence can be propagated at the sectoral level by altering the structure of the markets and the degree of concentration in favour of both end-users and suppliers. Finally, at macroeconomic level, the effects can be seen through higher contributions to the government budget that support the balance of payments, but also by changing the structure of exports and improving the balance of trade balance. On the other hand, the indirect impact of FDI on host economies appears in the form of training and learning effects on local firms as a result of mimetic behaviour of the latter. These effects include technology transfer, human resource development, or increased performance of local businesses competing with multinational companies' subsidiaries. (Horobet and Popovici, 2017). The rather large number of empirical studies conducted in the field shows that CEE economies have benefited from the presence of foreign-owned companies and that their development was positively influenced by the activities of these foreign companies (Damijan and Rojec, 2007; Hanousek et al., 2011; Acarvaci and Ozturk, 2012; Curwin and Mahutga, 2014;). In this framework, it is worth mentioning that CEE countries continuously improved their locational advantages offered to foreign investors to a high extent as a result of upgrading their institutional frameworks as a needed requirement for joining the EU; in turn, these efforts led to an increased ability of their economies to absorb the positive effects related to foreign-owned companies' activities (Lall and Narula, 2004). Our paper sheds light on the activities of foreign-owned (i.e. FDI) companies in a number of eleven CEE countries by contrasting their performance against the results of activity of locally-owned companies. This comparative approach is interesting and challenging at the same time, given the differences in performance between foreign-controlled and domestic companies evidenced in the academic literature, in favour of foreign-owned businesses. From a theoretical point of view, company's ownership is advanced as one of the factors that explains the performance and competitiveness of a company, and, from this angle, there are two main literature strands that provide explanations for this performance gap. On one hand, the specific advantage theory (or hypothesis) of the foreign-owned company discusses the comparative advantages of multinational enterprises' operations in relation to domestic-owned companies; this theory is based, on one hand, on the "ownership advantage" as included in the well-known OLI paradigm (Dunning, 1973; Dunning, 1988) and, on the other hand, on the "multinationality" feature of foreign-owned companies in a host economy that allows them to benefit from the network of affiliates in order to obtain better access to global markets and resources (Weche Gelubcke, 2013). Rather expected, Grasseni (2010) finds that this specific advantage of the multinational firm that operates in foreign markets is conditioned by the level of development of the host countries. On the other hand, the cost of doing business abroad by foreign entity generates a competitive disadvantage for the multinational company (see, in this respect, Zaheer, 1995, or Gorostidi-Martinez and Zhao, 2017). This cost might have various sources – such as the geographical distance between the affiliate and the parent company, the restrictions in existence in the host country for doing business or the unfamiliarity with the host country's business environment -, which could eventually cause lower profitability and efficiency levels for foreign-owned companies compared to locally-owned ones. Our research aims at adding to the existing empirical literature in the field of differences in performance between foreign and domestic companies operating in the same business environment by focusing on a region of Europe – Central and Eastern Europe – that received significant inflows of FDI after its opening to the market economy at the end of the 1980s. Previous empirical studies have not reached an agreement on the prevalence of a performance gap in favour of foreign-owned companies, as results depend on the measures of performance used, the research methodology, the sample of industries and countries under investigation or the period under scrutiny. Our approach is close to a preliminary study on these performance gaps in eleven CEE countries that deserves to be continued.

The paper is organized as follows: Section 2 presents the data and methodology employed in our research, Section 3 discusses the main results and Section 4 concludes.

2. DATA AND METHODOLOGY

The analysis of post-crisis performance in foreign- versus locally-owned businesses in CEE countries carried out and presented in this paper uses data that covers the period after the Global financial crisis, between 2009 and 2014, on eleven economies in the region, as follows: Bulgaria (BG), Czech Republic (CZ), Estonia (ES), Croatia (CR), Latvia (LA), Lithuania (LI), Hungary (HU), Poland (PO), Romania (RO), Slovenia (SL) and Slovakia (SK). Data was collected from the FATS - Foreign Affiliates Statistics covered by Eurostat for two different levels of the economy, i.e. "Controlled by the reporting country" covers data referring to locally-owned businesses and "World total except for the reporting country" covers data referring to foreign-owned companies. It should be mentioned that the FATS database considers as "foreign-owned" companies the ones where the share of foreign capital is at least 50% of the subsidiary's capital. Our analysis makes use of the following business characteristics at economy-wide level: (i) Turnover or gross premiums written (TURN)[1]; (ii) Gross investment in tangible goods (GROSSINV)[2]; (iii) Number of persons employed (PERSEM)[3]; and (iv) Value added at factor cost (VA)[4]. Also, we have collected from Eurostat data on indicators at enterprise level, which are obtained after dividing the economy-wide indicators by the number of enterprises; as such, the enterprise attributes that we use in our analysis are (i) Turnover per enterprise (TURNE); (ii) Number of employees per enterprise (EMPLE); and (iii) Value added per enterprise (VAE). Besides these business characteristics, our research employs several business competitiveness indicators, also collected from FATS, as follows: (i) Turnover per employee (TURNPE)[5]; (ii) Apparent labour productivity (ALP)[6]; (iii) Simple wage-adjusted labour productivity (WALP)[7]; (iv) Gross operating rate (GOR)[8]; and (v) Investment per person employed (INVPE)[9].
These indicators were considered in our analysis either at their absolute values, or by their compound annual growth rate (CAGR) for the 2009-2014 period.

3. FOREIGN- VERSUS LOCALLY-OWNED COMPANIES: AN ANALYSIS OF PERFORMANCE

Figure 1 shows the relative importance of foreign- versus locally-owned businesses in the countries included in our sample by considering three indicators at firm-level, i.e. turnover, gross investments and the number of persons employed. Data displayed in Figure 1 is based in the average values of these indicators between 2009 and 2014. As it can be easily noticed, local businesses dominate largely the economic landscape in all eleven CEE countries, but some differences among countries are also observable. As such, foreign-owned companies had the

[1] Turnover refers to the market sales of goods and services supplied to third parties, including non-deductible taxes, duties and charges, rebates and discounts.
[2] Gross investment in tangible goods shows the investment in existing or new tangible capital goods, including land.
[3] The number of persons employed includes the average yearly headcount of persons employed and paid in the sector, including unpaid workers and persons absent for a short time.
[4] Value added at factor costs shows the gross income from operating activities after adjusting for operating subsidies and indirect taxes. All definitions are provided in the Foreign controlled EU enterprises – inward FATS statistics of Eurostat – see http://ec.europa.eu/eurostat/statistics-explained/index.php/Category:Structural_business_statistics_glossary.
[5] Turnover per employee is found by dividing the total turnover by the number of persons employed.
[6] Apparent labour productivity is the value added at factor costs divided by the number of persons employed.
[7] Simple wage-adjusted labour productivity is defined as the apparent labour productivity divided by average personnel costs.
[8] Gross operating rate is the ratio of gross operating surplus to turnover.
[9] Investment per person employed is the ratio of gross investment per number of persons employed.

highest share in the turnover in Hungary (a ratio of 1.11 to locally-owned businesses), followed by Slovakia (1.03) and Romania (0.87), while the least important presence of foreign ownership is recorded in Slovenia and Croatia (the ratios of foreign-owned versus locally-owned businesses were 0.35 and 0.35, respectively). In terms of number of persons employed, the largest share of foreign companies is recorded in Estonia (0.60 against local companies), followed by Czech Republic (0.36), and the lowest shares are found in Bulgaria and Lithuania (0.17 for both). When gross investments are considered, the ratios of foreign versus local businesses vary between 0.89 for Hungary and 0.24 for Slovenia, but, as in the case of the number of persons employed, locally-owned businesses control the economic environment in all countries from CEE.

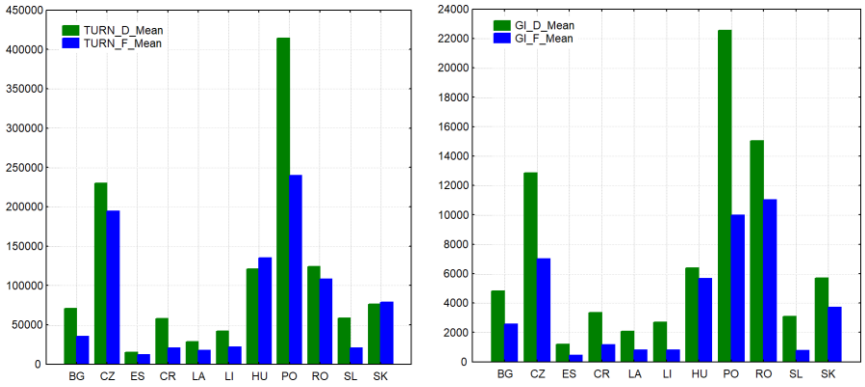

Figure 1: Foreign versus locally-owned companies attributes, average 2009-2014 (Eurostat data and author's calculations)

When we depart from the economy-wide level to study the "average" foreign- versus locally-owned enterprises in CEE economies, other interesting differences between them are observed. In Figure 2 we show the characteristics of such "average" enterprises in CEE countries from the perspective of turnover, number of persons employed and value added by considering all types of ownership (All), domestic ownership (D) and foreign ownership (F). By far, the most striking remark after studying Figure 2 is that foreign companies, on average, have higher turnover, employ a higher number of persons and generate more value added compared to domestic-owned companies in all eleven countries included in our analysis; this result indicates that foreign-owned businesses tend to be, on average, bigger than they local counterparts, which is also reflected, as we will later explore, in better performance attributes of foreign companies against local ones. As an order of amount, the difference in terms of turnover between foreign and domestic companies is the highest in Slovakia, where the "average" foreign-owned business generates a turnover that is more than 75 times larger than the "average" locally-owned

company, and smallest in Estonia, where the ratio between the "average" turnovers is only 2.51. At the same time, there is significant variance among both the "average" foreign- or locally-owned businesses from CEE economies; as such, the average locally-owned company tends to have a size measured by turnover between 236.2 million euros (Bulgaria) and 502.6 million euros (Slovenia), with the extremely notable exceptions of Czech Republic and Poland, where local companies have a size of 6,341.8 and 6,351.4 million euros, respectively. The situation is rather similar in the case of foreign companies – the average size varies between 2,867.7 million euros for Bulgaria and 15,956.4 million euros for Estonia, with the exception of Slovakia (22,333.5 million euros) and Poland (36,018.0 million euros). This might be explained by the market size of these two more developed CEE economies, but also by the more varied business opportunities available and the stronger presence of multinational companies in the economies where the business size is higher. When the number of persons employed in considered, Slovakia and Czech Republic lead in terms of the ratio of the size of foreign- versus locally-owned companies – 25.7 and 23.4, respectively -, while for the other countries the ratio varies between 1.86 for Estonia and 9.81 for Hungary. Again, we add to this considerable variation in the size of the "average" company for both locally- and foreign-owned businesses. For example, domestic companies employ on average between 2,657 people in Czech Republic and 62,571 people in Estonia, while foreign ones employ on average between 22,000 persons in Slovenia and 207,257 persons in Poland. The situation finds itself a replica in terms of value added, where the ratios between the "average" foreign- versus domestic-owned company show the same superiority in size of foreign-owned companies against domestic ones; as such, the "average" Slovakian foreign-owned company generated a value added that was more than 49 times higher than the value added obtained by the "average" locally-owned company, while the smallest ratio is recorded in Estonia, where the "average" foreign-owned company generated a value added only 2 times bigger than the one obtained by the "average" locally-owned business. Moreover, these three indicators' evolution between 2009 and 2014 – turnover, number of persons employed and value added –, captured by the compound annual growth rate (CAGR) and illustrated in Figure 3 in a box-plot format, shows that foreign-owned companies managed to record higher growth rates on average compared to locally-owned companies' growth rates across the eleven countries included in our sample. In the case of turnover, the best CAGR as an average between 2009 and 2014 is 6.7% for Estonian locally-owned companies and 12.1% for Czech foreign-owned companies, while the worse performance are observed in Slovakia for locally-owned businesses (-18.4%) and Slovenia for foreign-owned companies (-9.9%). In terms of number of persons employed, locally-owned companies have reduced their employees on average between 2009 and 2014 in eight of the eleven CEE countries considered (the exceptions are Estonia, Hungary and Romania) with rates between 18.9% (Slovakia) and 0.5% (Czech Republic), while foreign-owned businesses increased on average the number of employed in eight out of the eleven countries included in our analysis (the exceptions are Latvia, Lithuania and Slovenia), with CAGR varying between 0.6% (Romania) and 9.4% (Czech Republic).

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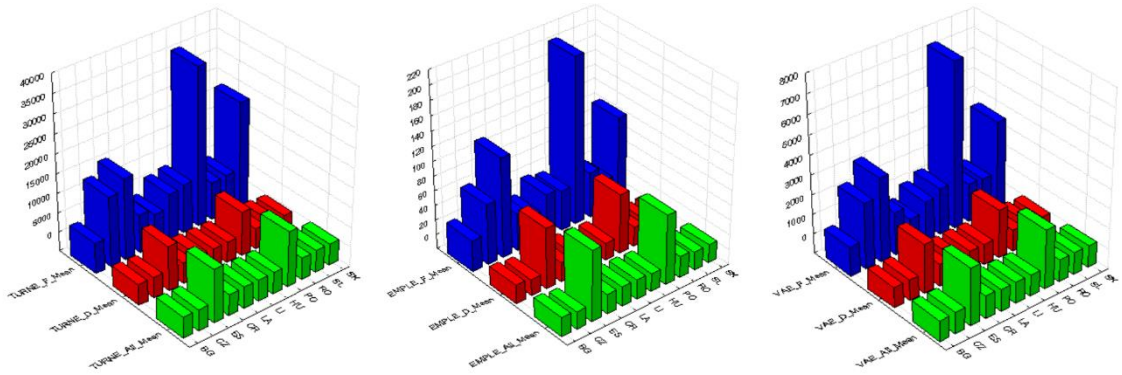

Turnover Persons employed Value added

Figure 2: Enterprise characteristics: economy-wide and foreign versus locally-owned businesses, average 2009-2014 (Eurostat data and author's calculations)

Figure 3 also shows that Czech Republic was a positive outlier for all indicators in the case of foreign-owned companies, while Slovenia is a negative outlier for the number of persons employed by foreign-owned companies (an outlier is an observation that does not appear to follow the characteristic distribution of the rest of the data; in our analysis, an observation is an outlier if "observation > UBV +1.5 × (UBV – LBV)" or "observation < LBV – 1.5 × (UBV – LBV)", where UBV is the upper value of the box in the box-plot and LBV is the lower value of the box in the box-plot).

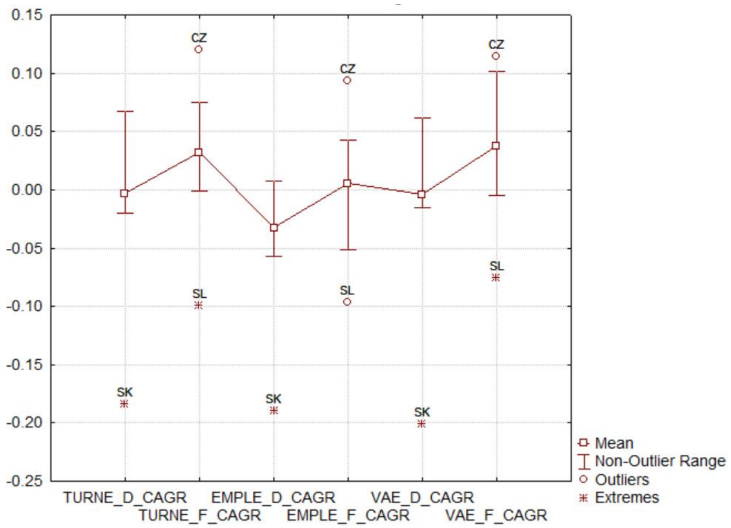

Figure 3: CAGR of enterprise attributes: foreign versus locally-owned enterprises, 2009-2014 (Eurostat data and author's calculations)

At the same time, Slovakia shows the characteristics of a negative extreme observation for all three indicators for locally-owned companies and Slovenia is also a negative extreme for turnover and value added, this time for foreign-owned companies (in our analysis, an observation is considered extreme if "observation > UBV +2.5 × (UBV – LBV)" or "observation < LBV – 2.5 × (UBV – LBV)", where UBV is the upper value of the box in the box-plot and LBV is the lower value of the box in the box-plot). This shows again, as in the case of indicators' absolute values discussed above, that companies' performance varies significantly across CEE economies, regardless of whether one investigates the foreign or the local companies' activities.

The differences in business indicators observed above between foreign- and locally-owned companies are reflected, in the end, in the companies' competitiveness indicators. We present in Figure 4 the evolution of five competitiveness indicators – Turnover per person employed (TURNPE), Apparent labour productivity (ALP), Wage-adjusted labour productivity (WALP), Gross operating rate (GOR) and Investments per employee (INVE) – as a CAGR between 2009 and 2014 for both domestic- and foreign-owned companies in a box-plot format. The graph illustrates a few interesting points, as follows: (i) across the eleven CEE countries included in our research, foreign-owned businesses recorded better performance than locally-owned companies on average in terms of ALP and GOR, and worse performance in terms of TURNPE, WALP and INVPE; (ii) although all averages for the sample of eleven countries were negative, which means that all types of businesses have recorded positive growth rates on average in the region, in some countries the CAGR has been negative between 2009 and 2014; in the case of domestic-owned companies, the negative CAGRs are recorded for Croatia (for TURNPE and INVPE – as outlier and GOR), Slovakia (for ALP and INVPE – as outlier), Bulgaria (for WALP and GOR), Latvia (for WALP and GOR), Poland (for GOR), Romania (for WALP – as outlier), and Slovenia (for INVPE – as outlier); in the case of foreign-owned companies, the negative CAGRs were recorded by Bulgaria (for INVPE – as outlier), Croatia (for TURNPE, ALP – as outlier and WALP, INVPE), Czech Republic (for GOR), Estonia (for GOR and INVPE), Latvia (for INVPE), Hungary (for INVPE), Poland (for WALP and GOR – as outlier), Romania (for WALP), Slovenia (for TURNPE – as outlier and INVPE), Slovakia (for TURNPE); (iii) taken on a country-by-country basis and for each performance indicator, the differences between foreign- versus locally-owned businesses are not always in favour of foreign companies; when turnover per employee is considered, domestic companies enjoyed on average better performance than foreign ones in eight out of the eleven countries (the exceptions are Czech Republic, Latvia and Slovakia); in labour productivity terms, in five countries (Estonia, Croatia, Lithuania, Poland and Slovenia) the ALP growth rate was higher on average for locally-owned businesses and in ten countries the WALP was higher also for locally-owned businesses (the exceptions are Bulgaria and Latvia); in profitability terms, GOR growth rate was higher for locally-owned companies in six CEE countries (Czech Republic, Estonia, Croatia, Lithuania, Hungary and Poland); and when investment per employee is considered, its CAGR was higher for local businesses also in six countries (Bulgaria, Czech Republic, Estonia, Latvia, Hungary and Poland); (iv) the lowest variation across the eleven countries is recorded for both foreign- and locally-owned companies for WALP, while the highest variation is recorded for GOR in the case of foreign-owned companies and INVPE for locally-owned businesses. Under these circumstances, it is worth mentioning the fact that, despite the more rapid growth of performance indicators for locally-owned businesses, the absolute values of these performance indicators debuted at lower values compared to the similar values for foreign-owned companies and the performance gaps between foreign-owned versus locally-owned business was still preserved at the end of 2014. In order to capture this relationship between value and growth for the performance indicators across the eleven economies under analysis, Figure 5 shows the correlation between the absolute average values and CAGR between 2009 and 2014 of four performance indicators – TURNPE, INVPE, WALP and GOR – for both locally-owned and foreign-owned companies. This way we wanted to observe whether, at the aggregate CEE countries' level, smaller values of indicators would be accompanied by higher growth rates, which would in turn lead to a diminishing performance gap between foreign and local companies. The solid lines in each graph in Figure 5, as line of best linear fit, indicate the type of the relationship between the two indicators (absolute value and CAGR), i.e. positive when sloping upward and negative when sloping downward.

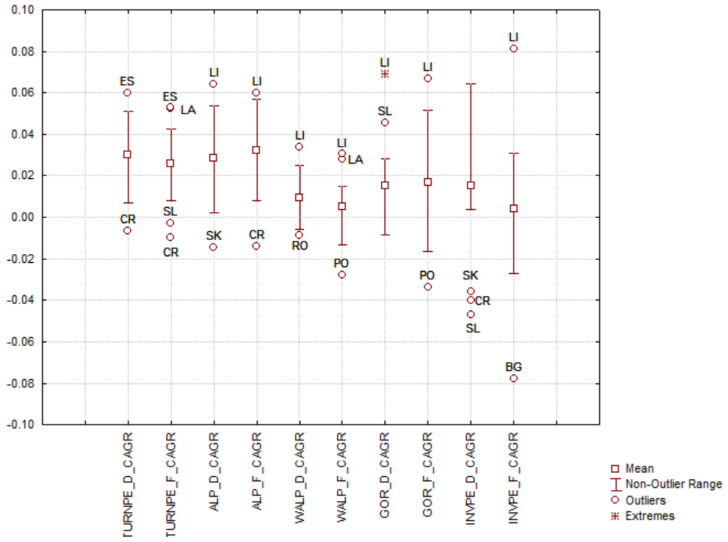

Figure 4: CAGR of competitiveness indicators: foreign versus locally-owned enterprises, 2009-2014 (Eurostat data and author's calculations)

As it can be observed in Figure 5, the hoped-for negative relationship between performance indicators' absolute values and their CAGR between 2009 and 2014 seems to hold for all indicators in the case of foreign-owned companies, with a stronger point in the case of WALP and GOR, while for locally-owned companies the relationship is negative only for WALP and GOR, but it looks positive, on average, for TURNPE and INVPE. This result suggests that during the post-crisis time foreign-owned companies in the region regained their lost competitiveness at the end of 2008 by growing faster and this growth was more heightened in countries were performance was at lower levels at end 2008. At the same time, locally-owned companies with lower performance at the end 2008 improved this performance by higher CAGR only in terms of labour productivity and profitability.

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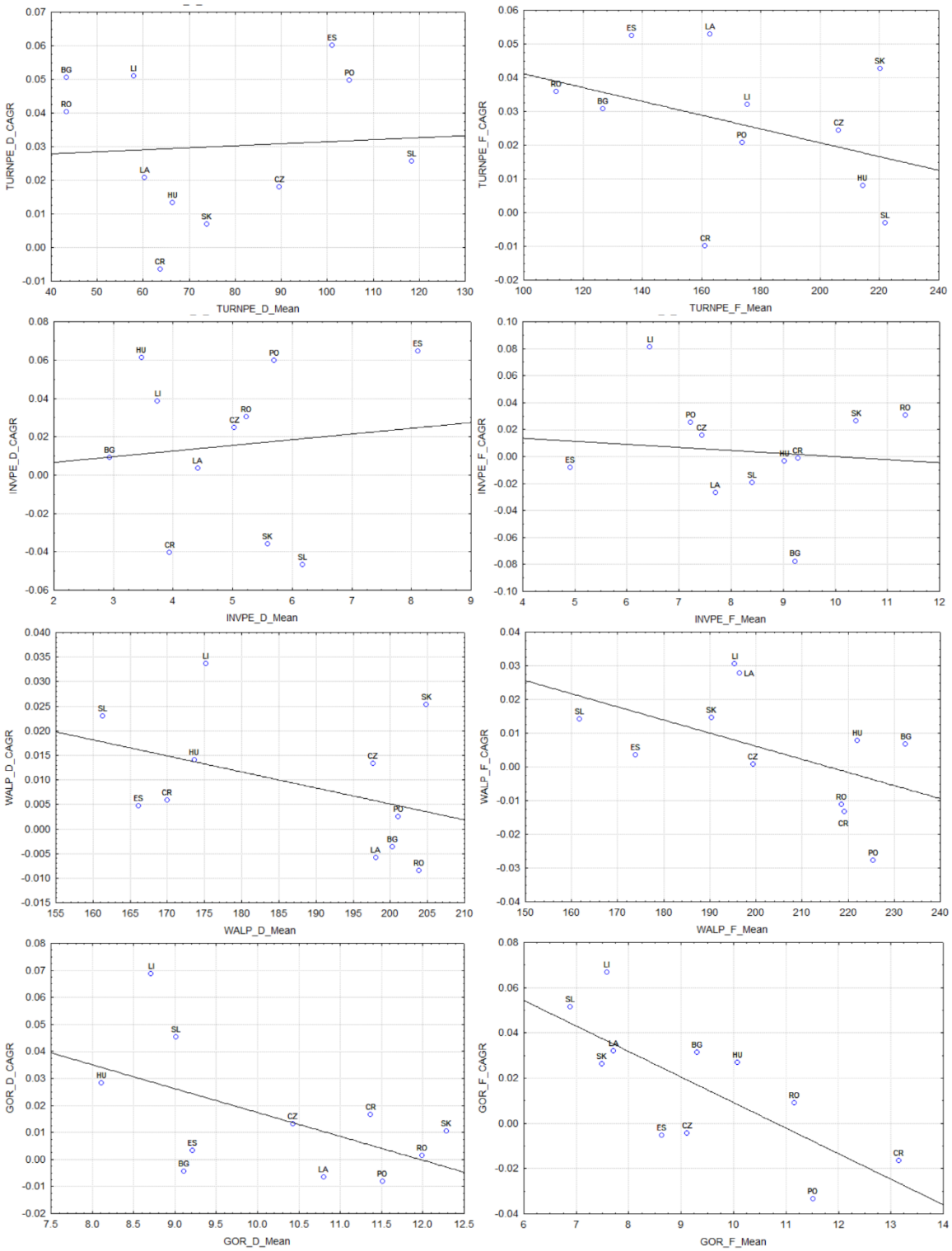

Figure 5: Correlation between means and CAGR of competitiveness indicators: foreign versus locally-owned enterprises, 2009-2014 (Eurostat data and author's calculations)

4. CONCLUSION

Our paper sheds light on the activities of foreign-owned (i.e. FDI) companies in a number of eleven CEE countries by contrasting their performance against the results of activity of locally-owned companies. Building on the specific advantages versus liability of foreignness framework, our research aimed at adding to the existing empirical literature in the field of differences in performance between foreign and domestic companies operating in the same

business environment by focusing on CEE, a region that received significant inflows of FDI after its opening to the market economy at the end of the 1980s. We find that foreign-owned companies, on average, have higher turnover, employ a higher number of persons and generate more value added compared to domestic-owned companies in CEE countries included in our analysis, which is reflected in better performance attributes of foreign companies against local ones. Still, taken on a country-by-country basis and for each performance and competitiveness indicator, the differences between foreign- versus locally-owned businesses are not always in favour of foreign companies. At the same time, though, during the post-crisis time foreign-owned companies in the region regained their lost competitiveness at the end of 2008 by growing faster and this growth was more heightened in countries were performance was at lower levels at end 2008. Nevertheless, locally-owned companies with lower performance at the end 2008 improved this performance by higher CAGR only in terms of labour productivity and profitability.

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THE ROLE OF THE NATIONAL POSTAL OPERATOR IN THE CONTEXT OF E-ADMINISTRATION DEVELOPMENT– EXAMPLE OF POLAND

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ABSTRACT

The article attempts to examine tools used to enhance trust to electronic transactions on the internal market by ensuring a common basis for the safe electronic interaction between citizens, companies and public institutions. The article discusses the following research hypothesis: The increase in trust to electronic transactions can be attained by introducing electronic identification and authorisation tools enhancing the efficiency of online public and private services, e- business and e-commerce in the EU. While referring to its goal and the hypothesis, the article discusses the following research question: What are specific electronic identification and authorisation tools used in communication between citizens, companies and public bodies? While attempting to give answer to the question, the article refers to EU regulations applicable to electronic identification and trusted parties in the context of on-line services. Then, the article focuses on findings of the study designed to determine behaviour and needs related to dealing with online electronic public services. A major part of the article proposes to integrate Poczta Polska S.A., the Polish national postal operator, in the process of promoting electronic identification and trusted services on the Polish market.

Keywords: *e-administration, postal market, public services.*

1. INTRODUCTION

One of the key factors determining the functioning of the information society is the use and development of information and communication technologies (ICT) (Webster, 2014, p.3, Heeks, 2010, pp. 625-640, Ziemba, 2016). The society changes together with the economy. For this reason, it is important to build trust to the online environment which has become a foundation for economic and social growth (Mensah, Mi, 2017, pp. 21-36, Mou et al., 2017). It is worth emphasising that the lack of trust, caused mainly by the unstable legal framework, discourages citizens, companies and public authorities from making electronic transactions and implementing new services (Fakhoury, Aubert, 2015, pp. 346-351; Belanche et al., 2014, pp. 627-640, Mutimukwe, 2017, pp. 324-335). Therefore, it is necessary to enhance trust to electronic transactions on the internal market by securing a common ground for safe electronic interaction between citizens, companies and public institutions. This, in turn, will improve the efficiency of online public and private services, e-business and e-commerce in the EU (Morgner et al., 2016, pp. 3-18; Schroers Van Alsenoy, 2014, pp. 1-3) .

2. EIDAS – OBJECTIVES AND GOALS

The eIDAS Regulation repealing Directive 1999/93/WE of the European Parliament and of the Council on a Community framework for electronic signatures has become a legal tool aimed at developing trust to the online environment, trust which is a basis for economic and social development. The directive failed to ensure detailed cross border and cross sectoral framework to provide for safe, reliable and easy electronic transactions (Cuijpers, Schroers, 2014). The eIDAS Regulation strengthens and widens the output of the directive. The eIDAS aims at enhancing trust to electronic transactions by ensuring common grounds for the electronic interaction between companies, citizens and public authorities to improve efficiency of public and private online services, e-business and e-commerce in the European Union and facilitate

the use of cross border online services (Hühnlein, 2014, pp. 241-248). It should be noted that currently, in the majority of instances, citizens do not have the possibility of using their electronic identification to authenticate themselves in another member state, since national electronic identification systems in their country of origin are not recognised in other member states. The barrier does not allow service providers to fully utilise the internal market. Mutually recognised means of electronic identification should facilitate the cross border provision of services on the internal market, including activity abroad without any need to struggle against barriers in the contact with public bodies. At the same time, it is necessary to ensure safe electronic identification and authentication for the purpose of cross border online services offered by member states. The above would allow an entity from one member state to proceed safely with a procedure in the administrative body of another member state within an e-service scheme (Jordan, Pujol, Ruana, 2014, pp. 81-93). Moreover, as regards means of electronic identification, the eIDAS Regulation specifies rules of mutual recognition of such means, conditions for notification of electronic identification systems, levels of electronic identification system safety, liability for damages and rules of cooperation between member states while implementing the eIDAS Regulation. The eIDAS Regulation marks a new chapter in the development of public administration services. While unbundling electronic identification and trust services, as prescribed in the regulation, the European Union determines competences and responsibilities for developing of such services. It has been highlighted that:

1. Electronic Identification Services should be guaranteed by the state and play the role of a catalyst stimulating the development of other electronic services. It should be highlighted that although the regulation does not specify that the services should be based on a centralised system under the sole control of the government, it specifies that each member state should define which of those services are guaranteed by the state;
2. Trust services which are addressed mainly to commercial entities that provide paid services where their quality is assured by supervision and control by relevant bodies, but the scope and business models are determined according to the rules of the market.

3. E-SERVICES IN POLAND AND THE EUROPEAN UNION

While examining e-services in Poland, it is necessary to analyse their level in comparison to other countries of the European Union. According to the 2016 survey by the European Commission on e-services provided by the public administration to citizens in particular EU member states, figures for Poland has been some of lowest in the EU. Poles use digital channels to contact e-administration less frequently than other EU citizens. However, with the spread of e-education, the Polish society has become increasingly educated and aware of their rights, and while seeing the failure of the state, they demand action to be taken to improve the quality of public services and change traditional bureaucratic structures (Budziewicz-Guźlecka, 2008). Nevertheless, this means that fewer issues can be dealt with over the Internet than in other European countries. The percentage of people using public administration e-services in the EU has been presented in Figure 1.

Figure following on the next page

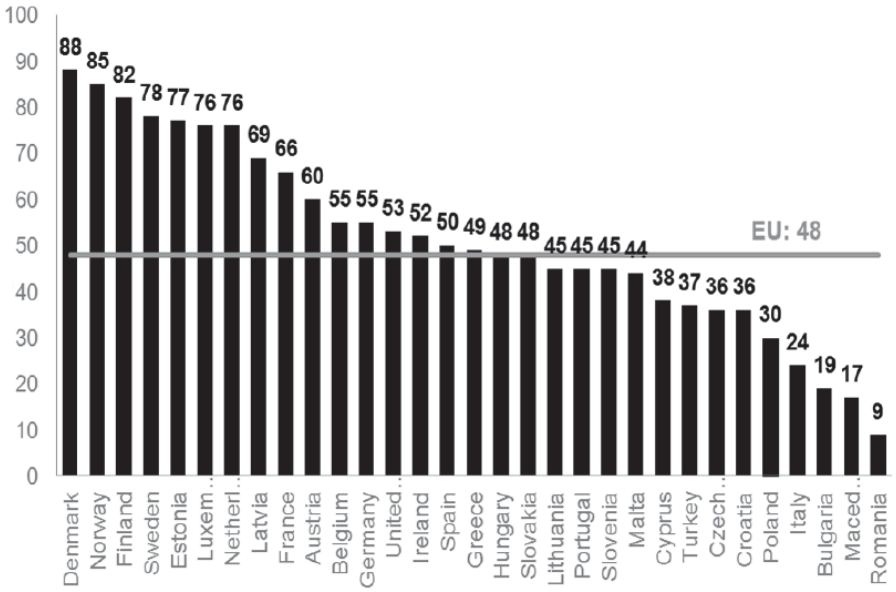

Figure 1. People using public e-administration services in the EU (Eurostat, http://ec.europa.eu/eurostat/data/database.)

In 2016, e-services were used by 48% of EU citizens, which is 18 p.p. more than in Poland (30%), with Denmark taking the lead (88%). The survey also analysed people searching for information at public administration websites. It turned out that Poland was ranked as one of the last in the list (29%). The average for the European Union is 42%, that is 19 p.p. more than in Poland. Leading countries include Denmark (85%), and Finland and Norway (78%). Percentage figures regarding people searching for information at public administration websites are presented in Figure 2.

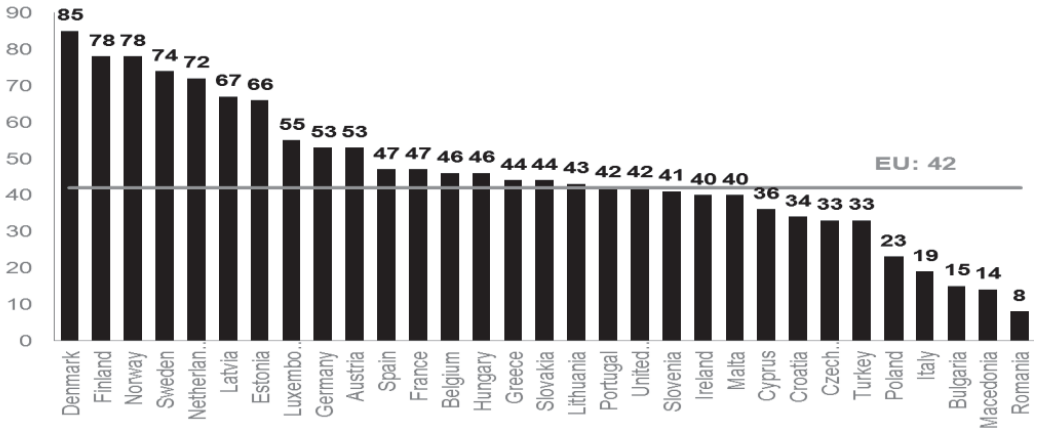

Figure 2. Searching for information at public administration websites (Eurostat, http://ec.europa.eu/eurostat/data/database.)

Summarising this part of the discussion, it should be noted that properly designed e-administration of a high usability level provides a key impulse for the socio-economic development of a given state. We should emphasise benefits of using such services which include time savings for citizens, simplified procedures and reduced administration cost. Poles less frequently than citizens of other EU countries use e-administration services. The goal of e-administration should be the improvement of the quality of life by providing efficient administrative services, rather than merely digitisation of administrative infrastructure. It is, therefore, important to design and implement e-services suitable and corresponding with

citizens' needs. The advancement in the implementation of particular e-services vary and can be examined against five e-administration development stages (provision of information, one-way interaction, two-ways interaction, transaction phase, and personalisation) (Drobiazgiewicz, 2011).

4. E-ADMINISTRATION IN POLAND

While examining the e-administration advancement level in Poland, an attempt was made to answer a question about specific electronic identification and authentication tools used for communication involving citizens, companies and public bodies. The CAWI survey of Q4 2017 covered 114 Poles at the age of 18+ and 64 companies. The survey focused on soliciting opinions about e-administration in Poland and defining behaviour and needs related to dealing with various matters via electronic channels and the awareness in the area concerned. Due to the nature and limitations of the article, in its further part, the article discusses only selected survey findings. The starting point for the survey was to determine the percentage of people using public administration services online as presented in Figure 3.

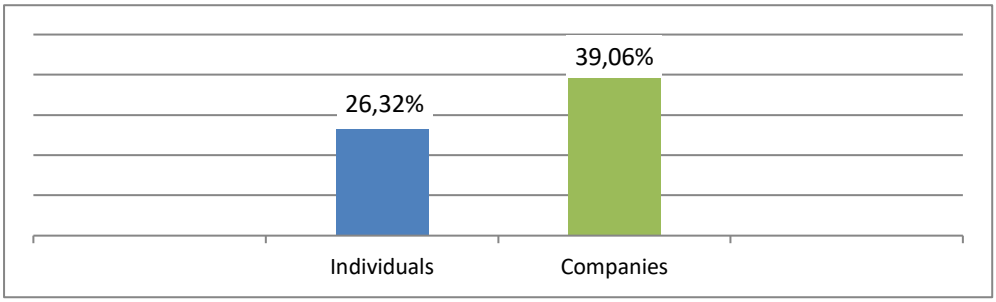

Fig. 3. People using public administration services over the Internet (own survey conducted by author in 2017)

Only one fourth of individual customers surveyed pointed to the use of public administration services over the Internet. The percentage figure was larger in the group of companies (40%), which was understandable due to a larger need to communicate with various public administration institutions. Another question referred to the form of communication used by companies. Figure 4 presents figures for companies having their accounts solely for contacting administration bodies.

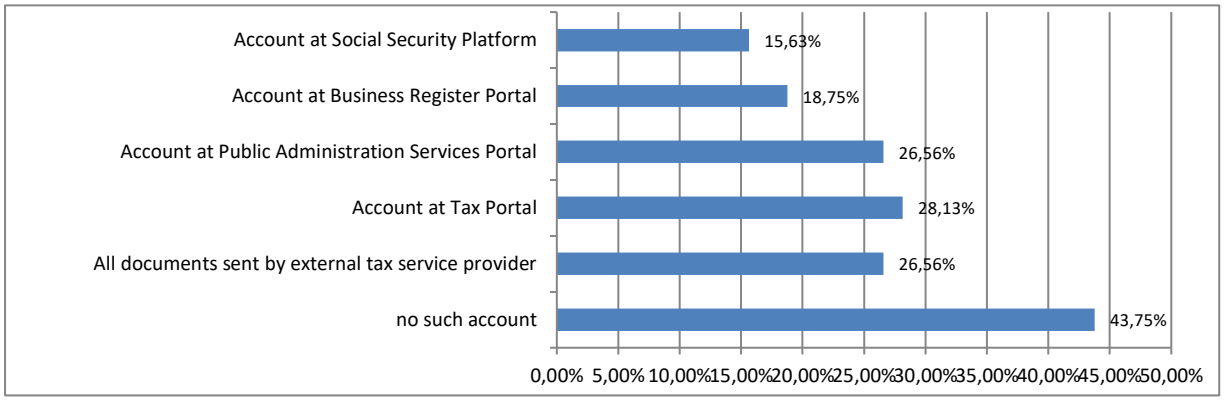

Fig. 4. Companies having accounts solely for contacting administrative bodies (own survey conducted by author in 2017)

Nearly 44% of companies surveyed declared that they did not have any account at e-administration platforms. Moreover, over one fourth of companies declared that they send documents through an external tax service provider. This means that more than 60% of

companies does not contact administration bodies through e-accounts. The largest number of companies, nearly 28%, declared to have accounts at the tax portal, and a similar situation was noted regarding accounts at the Pubic Administration Services Portal (26.56%). Only 18.75% of the surveyed companies declared to have accounts at the Business Register Portal (CEIDG). It should be emphasised, however, that any changes in the system require a qualified signature or a Trusted Profile. Without them you cannot register your business without leaving your home or make changes in, for instance, the scope of your business activity already registered. There has been reduced interest noted in the Social Security Platform (15.63%), a platform which supports electronic filing and communication with the Social Security (e.g. filing a compliance certificate request, use of e-payer system), which is very important for people who have employees. Summarising, it should be noted that survey findings showed that the government should attract companies and citizens to more intensive use of e-services. A solution that proved efficient in other countries has been the use of the national postal operator who already has a multiple-year experience in correspondence and exchange of documents with citizens.

5. DIGITISATION OF PUBLIC SERVICES WITH THE SUPPORT OF POSTAL OPERATORS IN SELECTED COUNTRIES

In recent years, in Europe, digitisation of public services helped to develop a number of IT systems aimed at playing the role of a modern postal service. Those services, known as 'digital postbox', 'digital safebox' or a 'certified e-mail', are used by governments of certain EU member states for correspondence and exchange of documents with citizens.[1] Digital postboxes[2] expedite communication with authorities and are very convenient for citizens. Moreover, a digital postbox can store official correspondence at a dedicated account. It should be emphasised that today, with the growth of electronic communication, a modern state should follow the trend and ensure efficient digital services to its citizens. Modern IT systems guarantee high security level for the communication between the state and the citizen, whereas at people who are not able to receive electronic correspondence from administrative bodies may be exempt from this form of communication.

Arguments for digital postboxes include the following:

- savings – it has been estimated that the cost of e-correspondence accounts for approx. 20% of the traditional correspondence; for recipients those are usually free of charge, and the cost is borne by senders;
- security – mechanisms applied by providers ensure a high security level for the storage of information in digital postboxes;
- accessibility – accessible from any place over the Internet;
- utility – the majority of system provides sufficient disc space for documents and enables their simple management;
- legal force – digital postbox systems provide incontestable evidence that documents have been sent and received, secure their content and authenticity by advanced authentication systems.

Below presented are solutions supporting the development of e-administration in selected countries.

[1] The analysis of digital correspondence systems in Europe showed that the most recommended solution for Poland can be the Czech model. It involves the implementation of the e-box project, and the e-box takes over major part of correspondence between the administration and the citizen (G2C), business and administration (G2B) and within the administration (G2G) which previously was sent using traditional registered mail. Post offices can play a complementary role of locations providing access to various types of official documents,

[2] A digital postbox is a location for receiving all official correspondence, e.g. letter from the tax office, notification from a hospital, information about pension or notice on accepting a child from a kindergarten. Letters sent to e-box may contain binding information and decisions made by public institutions.

Table 1. Solutions supporting the development of e-administration in selected countries (Digitization, 2016, p. 7-14)

Dania - e-BOKS	Established in 2001 the system for electronic communication linking public institutions and companies and citizens in Denmark. It is the first such solution in Europe which succeeded and became broadly accepted. All Danish local governments send messages through the e-Boks, and the same is done by many other institutions such as banks, insurance companies, utilities, and telecoms. A digital signature NemID is needed to establish the e-boks, and the signature can be obtained in several ways: online (using passport or driving licence, provided user address is included in national register), public administration bodies (authorisation in person) or online banking. The access to the e-Boks is very simple. It is possible to view one's e-boks through online banking which is very popular in Denmark (both among citizens and companies). Owners of the e-Boks system is the Post Denmark and Nets. The latter is the provider of payment services, payment cards and IT technologies. It should be emphasised that a major role in promoting the system has been played by the government which from the very beginning significantly supported its development. The system is mandatory for companies. From 2015 on, having an e-Boks is the obligation of every citizen in Denmark, whereas as until the end of 2015 it has been obligatory to use electronic channels to contact public institutions. Finally, 70% of citizens joined the system before it became mandatory. In 2015, the awareness of the system among citizens 15+ was 97%, which indicates that the information campaign was excellent.
Germany – De-Mail	The De-Mail was established under the initiative of the German government based on the De-Mail Law which became effective in 2011. The system has been used for secure exchange of correspondence and documents between authenticated users (citizens 18+), companies and authorities. According to the law, the De-Mail service can be provided by an accredited private provider which meets requirements specified by the law. At the moment, the service is provided by Deutsche Telekom AG, Mentana – Claimsoft, T-Systems and United Internet AG (owner of GMX, 1&1 and Web.de), whereas Deutsche Post has been undergoing the accreditation process. The De-Mail is a closed system in which providers exchange correspondence received from their clients. The De-Mail supports several data protocols and formats, including those related to the standard electronic mail, e.g. SMTP. All users need to authenticate their identity by visiting a provider. • Apart from the basic package of services, there are also complementary services, including De-Safe – a digital strongbox for keeping documents, • De-Ident – a digital identity.
FRANCE - Digiposte	The digital box is provided by La Poste and a dedicated account can be established online. However, La Poste introduced a verified digital identity, i.e. Digital IDentity. Once the user of the La Poste box established and verifies their Digital IDentity, they have the possibility of sending registered letters and using additional standard functionalities (e.g. time stamp). The Digital Identity and the underlying process of establishing and verifying it is free of charge. The service supports exchange of correspondence, and in the case of Digital Identity users it also provides a possibility of sending and receiving electronic registered letters. Additionally, it is possible to select the form in which a message will be delivered, i.e. paper (hybrid) or electronic. Electronic letters can only be sent to other users of the Digital IDentity. Digiposte offers DIGICheck, a dedicated free application that enables to read such codes.
ESTONIA - E-Estonia	A solution adopted in Estonia is E-Estonia. It is one of the friendliest e-administration systems. Every person having an Estonian ID number (corresponding to PESEL in Poland) has the possibility of establishing an e-mail address at @eesti.ee. Then, authorities can send important documents to citizens and those documents is encrypted using a popular DigiDoc software. @eesti.ee is not a mailbox. It is merely an address used to redirect correspondence to standard e-mail boxes (Gmail etc.). It should be noted that the e-mail service at @eesti.ee was established as a part of the governmental portal developed to maintain contact with citizens - eesti.ee. The service provides also the DigiDoc box. DigiDoc is a popular system in Estonia used for storage, exchange and signing of electronic documents. DigiDoc is accessible after one logs in using the Estonian ID with a chip or a mobile ID (supported by special dedicated SIM card). It should be emphasised that using of DigiDoc and e-mail at @eesti.ee is free of charge and the maintenance cost is borne by the Estonian government. According to estimates, by the mere use of electronic signatures, the Estonian government can save 2% of GDP annually.
Czech Republic - Czech POINT Datove Schranky	An interesting example of the cooperation between the national postal operator and the state administration is the collaboration between the Czech Post and the Czech administration. In 2008, after the adoption of the e-administration law, an electronic platform was established for implementing public administration activities. The platform provides an easy access to public administration services in contact points set in the Czech Posy. Post outlets enables the access to authenticates certificates from various public administration registers and forms, e.g. copies of entries to mortgage registers, registers of businesses, and the criminal register. The party taking the lead in implementing the law is the Ministry of Foreign Affairs. It should be emphasised that all e-administration projects have been grouped under the eGON programme (name derived from eGovernment). The eGON is based on the KIVS, the public administration communication system, and Datove Schranky[3], an interface, and the Czech POINT system [4].

[3] The system was formally established on 1st July 2009 and it is the main tool for the electronic exchange of documents under the e-administration scheme in the Czech Republic. The owner of the DS system is the Ministry of Internal Affairs (MV). The system is designed to reduce cost of communication between citizens and companies and public administration bodies, as well as improve speed, comfort and reliability of the communication without compromising security.

[4] The goal of the Czech POINT project was to improve contact between the citizen and administration (central and local), and in particular reducing time needed for the citizen to obtain specific documents. Project goals have been implemented by developing of an IT system ensuring the electronic access to registers for authorised civil servants (citizen assistants) and establishing service outlets where people can obtain authenticated copies of entries to those registers.

6. THE ROLE OF THE NATIONAL POSTAL OPERATOR IN E-ADMINISTRATION DEVELOPMENT

E-government is a natural stage of development in communication between the state and the citizen in the Internet era. It is also a source of major savings and a way to protect the natural environment. The involvement of reliable partners in the process of building a digitised state is crucial (Kotylak, 2009). The natural allies in the process should include state administration offices and companies owned by the State Treasury and offering key services for citizens. One of such entities is Polish Post S. A., the national postal operator. It should be highlighted that the electronic system of communication with the administration meets the expectations of citizens who would like to deal with various matters without leaving their homes. The post can be considered a natural partner for the Polish state for providing email services. At the moment, in many instances, the contact between the administration and the citizen is provided by the Post only (Digitisation, p. 3). A clear advantage of the Post as a partner for the administration is reaching people using the Internet and digitally excluded ones (elderly, inhabitants of rural areas and small towns).[5] The Post operates an elaborate network of outlets[6] which can guarantee access for all adult citizens. Contrary to private companies, the Post can also guarantee larger security and predictability. Moreover, in the case of cooperation with the Post, the risk of introducing unexpected fees or using data for commercial purposes is much lower. The national postal operator in Poland has already undertook to meet the challenge and started providing e-administration service by introducing Envelo. Envelo is a box created by the Polish Post for e-communication. It is suitable for supporting correspondence between the citizen and the state. Envelo provides for an easy and convenient access to complex, secure and trust e-services while using stationary and mobile equipment connected to the Internet. The scope of services developed and provided by Envelo also includes hybrid solutions, such as access to traditional postal services over the Internet and fully digital services. The main component of the Envelo platform, which enables to use it for digitising the public administration, is the Envelo box[7]. It enables sending messages from a trust account marked with a digital postal stamp. It is a vehicle for e-identity that authenticates users, whereas the digital postal stamp is a guarantee of authenticity and integrity of correspondence and a confirmation of the time it is sent and received. The survey of the Q4 2017 showed very poor awareness of the Envelo platform. Only 14.71% of companies surveyed indicated that they were familiar with the platform, whereas only 13,15% individual customers knew about the platform. This means that the overall awareness of the platform in the Polish society is very low. Figure 5 presents figures pertaining to the knowledge about the Envelo platform.

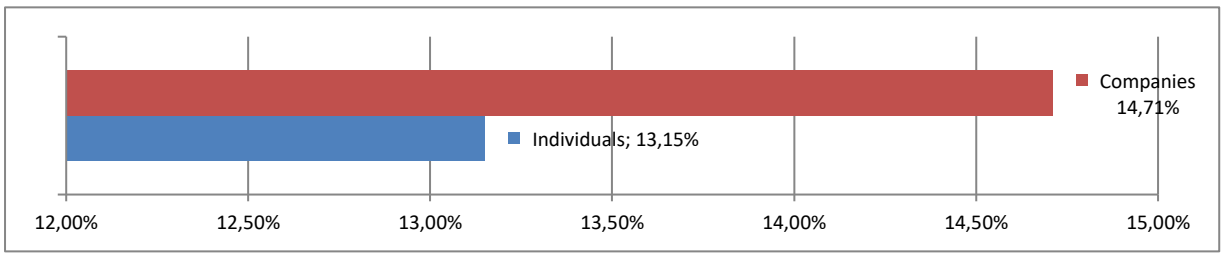

Fig.5 Awareness of Envelo platform (own survey conducted by author in 2017)

[5] The Polish Post enjoys decades-long trust among the majority of Poles. 80% of the surveyed people expressed their positive assessment of the Post, and the brand recognition is at the level of 98%. The main reason why customers select registered mail by the Polish Post is reliability of delivery. People value the most such features of the postal service as security, trustworthiness and efficiency. Opinions about the Polish Post in the Opinion Poll Report, September 2016.

[6] 7500 own and agent postal outlets and 24,000 mail carriers.

[7] E-box is a tool available at the Envelo platform, which can be used by the Polish Post to provide services for the state. An account provides access to all administration services and citizens may set it up while visiting a postal outlet. The personal authentication guarantees reliability of data.

Consequently, the use of the Envelo platform was even lower. Only 10.93% companies surveyed declared the use of the platform, whereas only 7.01% individual customers used the platform. These figures are presented in Figure 6.

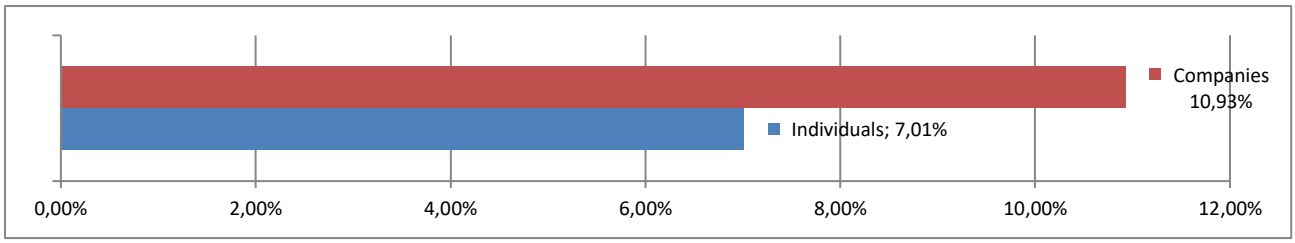

Fig.6. Users of Envelo platform (own survey conducted by author in 2017)

The analysis of survey findings enables to conclude that it is necessary to undertake action to promote the use of the Envelo platform. Such an action should improve trust to electronic transactions on the internal market by ensuring a common secure basis for electronic interaction between citizens, companies and public administration bodies. This will enable to enhance efficiency of public and private online services, e- business and e-commerce in the EU.

7. CONCLUSION

Being a state owned entity, the Post remains under the full control of while playing the role of the national postal operator. Considering its potential, it may become the national digital operator providing authentication of senders and recipients, and certainty, integrity and confidentiality of mailings. However, several criteria have to be met for the implementation of the task. The first one is the concentration on a single system. Another step is to ensure its functionality. The system should be based on interfaces which Internet users are linked with and operation of which is intuitive. The final, and the most important, criterion is the financial, material and organisational support of the government. Although the Envelo platform has the capacity to promote the development of e-administration in Poland, it is necessary to use IT tools (e.g. social campaigns) and administrative tools, such as those in Denmark where the system became mandatory for companies. The role of the state is to support comprehensive platforms at the administrative, organisational, and social levels. Poor activity in the area concerned or the lack of it will be a major barrier for the development of e-services. For this reason, it is necessary that the government administration gives a priority treatment to e-administration.

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MANAGERIAL ASPECTS OF INNOVATIONS COSTS – CASE STUDY

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ABSTRACT

The article addresses the problem of perceiving research and development activity from the perspective of the entity's accounting. The aims of the article include the identification of key accounting concepts and tools which, skillfully used, facilitate the management of listed stages of an innovational project as well as enable planning and control of costs and results of innovational activity. They also guarantee the presentation of reliable information in regard to accounting law. Additionally, the article is an attempt at answering the question regarding the relationship of the two elements of the accounting system, financial accounting and management accounting, in relation to the area of costs of research and development work. In the paper, the following methods are used: the case study method, the analysis of subject literature as well as the analysis of selected regulations of balance sheet law. Research and development activity is an example of an area of accounting in which the rules of recording and presentation of information for reporting complement data connected with management. Budgeting is the main tool supporting the management of an innovative project being realized by the presented enterprise. The enterprise has structured their budget in a way where the planned data could be monitored along with actual data and management information could shape information for the needs of different stakeholders. Paper contributes to the accounting literature on product innovations. Convergence of financial and management accounting is a challenge for contemporary accounting. Knowledge created to fulfill the needs of management shapes information expressed in financial reports. Today we can talk about existence of integrated accounting system under IFRS. The integration of financial accounting and management accounting is important both from the point of view of theory and the point of view of economic practice. One of the areas where this phenomenon can be observed is research and development activity.

Keywords: *Cost of Research and Development Works, Financial accounting, IAS 38, Innovations, Management accounting*

1. INTRODUCTION

Body One of the priorities defined by the European Union Commission in the *Europa 2020* strategy is intelligent development meaning economic development that is based on knowledge and innovation. The European Commission clearly underlines the necessity for increasing expenditures on research and development activity and improving the conditions for private research and development within the European Union [Jurczuk, 2012; Derlukiewicz, 2013]. Through varying causes the level of innovation of Polish enterprises is still low. It is necessary that the attitude of management staff as well as their subordinates change and that they begin to understand the significance of innovation. It is one of the most vital current as well as future developmental challenges of enterprises [Radomska, 2015]. Innovation is seen as a new world-ranging solution or one that has been adopted from other entities. A basic requirement for something to be considered an innovation is for the product, process, organizational or marketing method to be new or significantly improved in regard to a particular enterprise. It should also be added that a new or significantly improved product is implemented when it is introduced to the market. In turn, new processes, organizational or marketing methods are implemented when they are actually utilized in the company's operations. Innovation is the result of the innovation process understood as the organized activity aimed at the development

of new or improved process or processes. Enterprises are becoming aware that lack of innovational activity will limit their market success seen as a reflection of their competitiveness and value. The pursuit of development motivates enterprises to, within the area of research and development, cooperate with external entities most of all with suppliers, customers, their competition, research institutions, schools, governmental organizations or internet communities. At the same time, there is a change in attitudes and innovation is starting to be perceived as an element of creating new value for customers [Wysocki, Rak 2012]. The fact that during the process of creating innovation enterprises become open to their environment causes a change in their approach from the traditional closed model of innovation into one that is open [Kozarkiewicz, 2010; Chesbrough, 2012; Sopińska, Mierzejewska, 2017]. Innovations should be considered a key element of the development strategy which ensures the existence and future growth of an enterprise. Management of innovation requires the selection and utilization of methods and concepts directed at the development of innovation under the conditions of global economy that are based on information and knowledge. Achievement of this state of affairs is not possible without being able to coordinate various functional areas of the enterprise including operational, marketing and accounting activity. For innovation management to be effective and efficient the supporting tools used within this field must integrate the information systems of the enterprise. The realization of an innovative project requires the separation of its individual phases of which the most important are basic and applied research as well as developmental work. Interdisciplinarity characterizes the defining of innovation, therefore, strong integration of various management areas as well as the creation of information adapted to the specific character of innovational activity, both ex ante as well as ex post, is essential. The essence of accounting is to present a true and fair view of the economic reality and achievements of an entity. So far accounting has not been able to clearly define innovation nor does it treat it as a separate element of economic resources expressed in the balance sheet of the enterprise. From the perspective of accounting research and development work which enable the acquisition of the necessary knowledge and skills to generate and implement innovation into practice are the main source of innovations. Remembering the significance of innovations to the growth of enterprises and of accounting as the source of information for innovation management the article addresses the problem of perceiving research and development activity from the perspective of the entity's accounting. The aims of the article include the identification of key accounting concepts and tools which, skillfully used, facilitate the management of listed stages of an innovational project as well as enable planning and control of costs and results of innovational activity. They also guarantee the presentation of reliable information in regard to accounting law. Additionally, the article is an attempt at answering the question regarding the relationship of the two elements of the accounting system, financial accounting and management accounting, in relation to the area of costs of research and development work. The integration of created information fulfilling the needs of various stakeholders (internal and external) is significantly impacted by solutions of the International Financial Reporting Standards (IFRS) as well as by the internationalization of accounting knowledge [Sobańska, 2002; Sobańska, 2003; Sobańska, 2007; Ignatowski, 2007; Kabalski, 2012; Samelak, 2013; Karwowski, 2013; Kabalski 2017]. A factor which is conducive to the integration of accounting subsystems related to research and development work, seen in the example of the enterprise presented in the article, is the preparation of documentation aiming to acquire external sources of financing innovational projects, especially additional funding from the European Union.

2. METHODOLOGY

Applied research methods include literature studies as well as a case study. The article consists of two parts. The first part of the article contains the explanation of the main issues concerning

the theoretical approach of the presented problem. On the basis of literature studies tools of management accounting which support the management of the innovational processes from the moment the idea is put forward to the point at which the innovation is introduced to the market were analyzed, with focus on the particular stage of research and development work. Next, the perception of innovation from the perspective of accounting law. In the second part of the article the company's practice in regard to the creation of a budget of research and development activity costs and implementation work was presented. A large part of the official development strategy of an enterprise is based on creating product innovations as well as new technologies utilized in agriculture. A case study enabled the identification of the following correlations:

- between information generated for managerial purposes with information for external stakeholders and
- information provided by accounting, marketing and production activity with an innovation process which has been realized for a long time.

3. EXPRESSION OF RESEARCH AND DEVELOPMENT WORK COSTS IN THE ACCOUNTING INFORMATION SYSTEM

Accounting is a part of managing an organization, concerns the preparation and communication of financial and non-financial information utilized by many users, external as well as internal. Information presented to external stakeholders as financial and descriptive financial reports aims to facilitate the assessment of an enterprise as well as make appropriate economic decisions. For this reason accounting solutions should:

1. reconcile the informational requirements of various users and include different levels of information detail,
2. make information compliant with national and international accounting regulations explaining the rules of expressing and estimation of costs incurred for research and development work by enterprises realizing innovational activities,
3. combine knowledge as well as apply stipulations described in accounting law and by institutions providing funding for innovational activity.

To achieve this accounting fulfills a number of legal requirements and quality standards as well as utilizes fundamental concepts and guidelines ensuring credibility and comparability of presented information. In financial accounting, national accounting law regulating the inclusion of development costs as well as the guidelines included in IAS 38 Intangible Assets (Międzynarodowy Standard Rachunkowości 38, 2011) describing the essence of research and development work, providing examples, ways of its valuation and recognition within financial statements, are of fundamental importance. Growing significance of research and development induces enterprises to incur increasing expenditures within this area as well as measure the relation results/outlays. Accounting also involves the creation of information directed at internal users. Emphasis is placed on information that helps to solve problems as well as define them and which are not only credible but useful as well. A management accounting system is not universal for all organizations and depends on the character of an enterprise as well as its situation. A popular opinion is that main elements influencing success include costs, quality and innovation [Jaruga, Nowak, Szychta, 1999, p. 44]. Important aspects of management accounting encompass: orientation of created information at the external environment, consideration of actions and processes from the perspective of providing value for the customer, creation of value for owners, orientation at the distant future, orientation at business processes and the shared relations between processes in the value chain, internal perspectives for development and growth and the orientation at teamwork and functionality [Szychta, 2006]. For these reasons many methods and concepts of management accounting are characterized by their orientation at innovation.

These include methods supporting innovation management with consideration for their relationship to the realization of customers' expectations [Brilman, 2002]. A list of selected accounting instruments used in managing innovations with special consideration to research and development work is presented in Table 1.

Table 1 Selected instruments of management accounting oriented at managing innovation within an enterprise (developed by the author on the basis of Kaplan, Atkinson, 2000, p. 236; Kaplan, Cooper, 2000, p. 275; Kaplan, Norton 2001, pp. 100-105; Nowak, Piechota, Wierzbiński, 2004, pp. 256-261; Nita, 2008, pp. 256-257; Boniecki, Grabowski, 2007, pp.134-156, Stolarek, 2015, pp. 37-40; Łada 2017, pp. 17-18)

Instruments for managing innovations	Description
Life cycle costing and profitability: a tool for the strategic and operational management of costs and profitability, observation of product or products making up a family of products through the prism of profits, costs and effectiveness measured by the result achieved through the entire economic life cycle. Application: market introduction of new or improved product/service (product innovations).	The objects of interest include revenues, costs and combined results of the product's entire life cycle incorporating the pre-production, production and post-production phases. The concept encompasses costs of research and development, production costs, costs of withdrawing the product from the market and termination of production. A tool for managing costs of research and development which will occur in the product design phase. This phase determines 90% of later costs connected to a particular product. Generated cost reports spanning several years allow the analysis of information accumulated since the beginning of the economic life cycle of the product and determine the total impact of the product on the effectiveness of the enterprise.
Target costing: a strategic management tool concentrated on controlling costs from the beginning stages of the value chain and oriented at adapting cost structure to market and customer demands as well as at achieving profits throughout the entire life cycle of the product. Application: introduction of new products and technology to the market or the modification of existing products or technology or offering of subsequent generations of a product (product and process innovations).	The main object includes costs of the new or modified product analyzed throughout the entire life cycle of the product. The main aim is the search for optimal set of prices, costs and technological solutions for the product. A method aimed at reaching the goal of reducing pre-production costs, determination of cost at which the product with particular characteristics (appropriate quality, functionality, customer accepted price) should be produced so that the desired level of profit is achieved. Focused on the cost of research and development work, on designing a particular product model (designing of components one by one and their assembly), creating a prototype in a way which can be produced at cost ensuring that the enterprise achieves desired profit. The sum of costs incurred at the production and sales phases depends in 80-90% on the design based on research and development. This concept requires cooperation with suppliers from the supply chain as well as the collaboration with experts and specialists from various fields (marketing, accounting, research and development, production or design).
Kaizen costing: calculation of costs connected with the improvement of a specified problem area in the operation of an enterprise. Ex ante approach: the areas in which cost reduction can be expected are identified at the planning stage. Ex post approach: analysis of cost changes after they have been implemented.	Focused on finding possibilities for reducing costs within the implementation phase of a given project. This concept should be perceived as having a strong correlation with the calculation of product life cycle costs as well as the possibility to reduce every type of cost within any phase of the product life cycle. It can cause the reduction of costs connected to product design and testing.
Balanced Scorecard, BSC: a strategic management instrument, the translation of the organization's mission and strategy into a coherent set of aims and measures serving the realization of that strategy. Application: system of management and measuring effectiveness in four perspectives: financial, customer, internal processes and development. Presentation of achievements through the use of financial and non-financial measures, future and past indices. .	Innovations are a key internal process. A method for measuring and analysis of ordered data sets: target, planned and actual outlays for research and development. The scorecard translates the enterprise's strategy into specific strategic goals, defines key factors influencing their realization and measures for the effectiveness of research and development processes. Managers can establish goals for increasing effectiveness, decreasing time and cost reduction of every phase of research and development. Examples of measures: 1) for basic and applied research: percentage share of new product sales, number of new products introduced to the market in comparison to the competition; 2) product development: break-even time (BET), length of product development cycle.

Budgeting of innovative project costs: an instrument for resource planning, controlling and assessment of research and development work.	Encompasses the development of research and development project budgets as well as budgets of research and development departments preceded by establishment of a project schedule. There is no universal model of a budget and it is constructed based on the enterprise's needs or a model imposed by the institution providing funding. Specification of rules for the utilization of resources crucial for the effective completion of tasks defined in the innovative project and people responsible for the realization of particular tasks. Separate stages for research, development and implementation work are defined within the budget.
Investment effectiveness analysis and its ability to create value for the enterprise: instrument of financial analysis allowing the assessment of the effectiveness of innovative projects.	Methods using one and multiple criteria, quantitative and qualitative methods, methods considering the break-even period, economic effects achieved throughout the year, discounted sources of income and expenditures within the entire life cycle of an innovative project.
Calculation of innovative project costs: an instrument utilizing innovation cost classification and measuring in regard to informational needs of various stakeholders. Application of innovation costs grouping according to the rules of **activity based costing (ABC).**	Includes activities concerned with recording and identification of the level and structure of innovative project costs with consideration for decision making in regard to rationalization of those costs. The most common ways of classifying these costs include: 1) in relation to the object of innovational activity: costs of product, process or organizational innovations; 2) according to the phase of realization of an innovative project; 3) in relation to direct and indirect costs; 4) according to the type of resources being used; 5) in terms of requirements of institutions supporting innovative activity: division into eligible and non-eligible expenditures; 6) in relation to activities within the framework of innovative project phases.

The described methods of management accounting are production oriented. In principle, accounting law in force today also concerns mainly the aspect of product and technological innovation. Although there are two sub-systems: financial accounting and management accounting, together they make up one cohesive accounting system which provides prospective and retrospective information. Under the influence of the IFRS more and more information presented in financial reports is prospective. The entity, for the large part, selects solutions which fit its situation or its needs, the character of their operation, similar to the way it occurs in management accounting. In many areas IFRS refer to methods and instruments used in management accounting.

4. CASE STUDY

The presented enterprise planned the implementation of a product innovation which, on account of solutions used for some of the product's components, was also innovative technologically. The results of research and development work will become the subject of patent protection. The budget of the innovative project developed by the enterprise assumed that the innovation process will be divided into two main phases:

- phase 1 – the research and development phase consisting of industrial research and development work aimed at creation of a new product that would be unique throughout the entire world,
- phase 2 – the implementation and innovation phase involving the production and introduction of the new product onto the market.

As the result of phase 1 a prototype system which is advanced in relation to technology as well as software (equipment and programming) will be created while phase 2 will result in the expansion of the enterprise's offer by a new product constructed according to the rules of operation and parameters developed in phase 1. Research work which the Company intended to conduct as part of phase 1 encompassed industrial research aimed at obtaining new knowledge and skills for the creation of components of complex systems. It was assumed that

the costs of industrial research will primarily cover outlays connected with the acquisition of new knowledge or the updating of existing knowledge about the function of specific technical solutions through the technical analysis of parameters of solutions available on the market. The correct selection of such solutions will allow the construction of a new product in the future. The analysis of technical solutions utilized by the competition will provide an answer to the question: will the system using new solutions be competitive enough in relation to those already being applied in practice? Within this stage the enterprise intended to expand their technical and technological knowledge and propose one or more new product solution options. The result of this phase will be the selection of an appropriate solution. It has been assumed that the outlays within this stage will cover the purchase of software, research equipment, computer equipment and the services of outside experts. Costs included the costs of employment of R&D personnel, materials consumed, external services and general costs (such as rent of facilities or business trips) which could be directly attributed to the work being carried out. Costs also encompassed payment for an external service which consisted of the marketing analysis of customers' needs. The enterprise combined the definition of customers' needs and preferences with the technical analysis of the technological advancement of products previously produced by the competition. According to the national and international accounting law the enterprise expresses all expenditures falling into this stage at the moment of their incurrence. The results of this phase will be utilized as part of development work. The development work stage will allow the transformation of the results of the industrial research into plans, assumptions and projects connected to the new product. This requires incurring costs of creating a correctly functioning prototype guaranteeing the achievement, in production, of predetermined parameters and functions as well as costs connected to technical and technological testing of selected new solutions. The costs of the development phase are expressed in records as in-progress development work. According to the Polish Accounting Act (Ustawa z dnia 29 września 1994 r.) only the costs of development work conducted for the needs of the company which have been completed successfully and incurred prior to the initiation of production or the implementation of new technology can be qualified as part of intangible assets. In an enterprise the cost of work connected with the creation of a correctly functioning prototype guaranteeing the achievement, in production, of predetermined parameters and functions as well as costs connected to the preparation of technical documentation will be qualified as developmental work. Other than direct costs these also include general costs which can be qualified to the work being completed. All activity which will be realized after the completion of the prototype will be qualified by the presented enterprise into the implementation and innovation phase connected to the initiation of production of the new product. Actual costs incurred qualified as phase 2 costs are the basis for the expression in the balance sheet of in-progress development work costs. After their completion and verification that they have generated results and production of the new product will be initiated they will become the basis for their estimation and qualification as part of intangible and legal assets. Additionally, the enterprise in its assessment whether expenditures for development work can be capitalized uses marketing information and qualifies as a cost an external service – the order to perform an analysis of future markets and perspectives for their development. On the other hand, the classification of costs in terms of the requirements of institutions supporting innovative activity obligated the company to separate costs into eligible costs for reimbursement and non-eligible costs.

5. DISCUSSION

Research and development activity is an example of an area of accounting in which the rules of recording and presentation of information for reporting complement data connected with management. This is especially important for decision making regarding the implementation of development work on an industrial scale and preparation of source documentation assessing the

likelihood of completion of development work and fulfillment of condition for activation – through qualifying intangible assets costs of completed development work where these costs will be covered by sales of products. This is the area where the problem makes itself apparent since there is a need to create an accounting information system which will realize decision making as well as reporting goals in respect to research and development work. The use of ISFR/IAS forces or creates convergence between the perspectives of financial accounting and management accounting. First of all, on the basis of the requirements of IAS 38 enterprises can define elements of the innovative process, separate costs of research work from costs of development work and express costs connected to them separately in financial reports. Both the IAS 38 as well as the Polish Accounting Act require outlays for research work to be expressed as cost at the moment they are incurred. Costs of development work can be expressed in the balance sheet after specific conditions have been fulfilled. One such condition is to credibly determine the costs incurred for the creation of an element of intangible assets and prove the availability of technical and financial resources necessary for the completion and commercialization of development work. The entity should also prove that the element of property will likely create future economic benefits. Balance sheet assessment also requires the estimation of future economic benefits and in the event of a loss the creation of a valuation write-down. The conditions listed above justify the need to use instruments utilized in management accounting. The budget of an innovative project is an essential document confirming the separation of research work from development work and availability of resources necessary for the completion and commercialization of development work. It also provides information about the results of that work. The standard additionally requires the credible establishment of costs incurred for the creation of an element of intangible assets clearly showing that the key role within this area is played by cost accounting of the enterprise. Product life-cycle costing and profitability is very useful from the perspective of estimating service life and quantification of future economic benefits. IAS 38 lists the life-cycle as one of the factors determining the service life of the element of assets [Kabalski, 2012,]. The budget of costs also provides other stakeholders such as institutions funding projects with information. The main limitation of financial accounting is its focus on later phases of the innovative processes – the development work. Less attention is given to the earlier stages of that process although they are crucial and decide about the success of an innovative project. The main object of conducting research work is the search for solutions allowing the utilization of new scientific and technical knowledge in the operations of an enterprise and drawing benefits from them. This work contributes not only to the realization of the next phase of an innovative project – the development work, but also impacts the competitiveness of the entity within the market. The information gap within this area is filled by management accounting which offers methods emphasizing the significance of research work as well as development work. The scope of these methods covers cost reports generated for a period of several years which allow the analysis of financial information accumulated since the beginning of the economic life-cycle of the product and determine the total impact of costs of innovation on the effectiveness of the enterprise. The factor which may be favorable for the integration of the financial and management accounting functions in the matter of research and development work is the preparation of the documentation for the acquisition of external sources of financing innovative undertakings, an especially additional funds from the UE, as can be seen in the example of the enterprise which is the subject of the study. To sum up it is worth noticing that the listed conditions justify the integration of financial and management accounting. Both sub-systems make good use of their solutions creating a full, universal, integrated accounting system.

6. CONCLUSION

Convergence of financial and management accounting is a challenge for contemporary accounting. Knowledge created to fulfill the needs of management shapes information expressed in financial reports. One of the areas where this phenomenon can be observed is research and development activity. Budgeting is the main tool supporting the management of an innovative project being realized by the presented enterprise. The enterprise has structured their budget in a way where the planned data could be monitored along with actual data and management information could shape information for the needs of different stakeholders. The research and development work budget combines the following requirements:

1. Establishes the aims of the innovative project, planned activities and resources committed;
2. Precisely defines stipulations for qualifying research and development work outlays which makes their recording, estimation and presentation of cost incurred easier in financial reports;
3. Is a document which can be attached to the application form for funding from the European Union in which the qualification of costs for the needs of the institution funding the project is shown;
4. Provides information crucial for monitoring and management of costs incurred as well as enables the assessment of the degree to which the designated goals of an innovative project have been achieved.

It seems that a good solution for the future would be to use life-cycle costing and profitability which also encompasses data concerning income and effectiveness measured as a cumulative total.

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THE IMPACT OF HUMAN CAPITAL AND INNOVATION ON PORTUGAL'S ECONOMIC GROWTH: AN EMPIRICAL STUDY THROUGH STRUCTURAL EQUATION MODELS

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ABSTRACT

Human capital and innovation are decisive for the economic growth of countries and in the era of the knowledge economy the recognition of their importance is consensual. Despite the existence of many studies on the role of these factors in the economy, it is considered relevant to study the direct impact that human capital has on economic growth, as well as its indirect impact through the results of innovation. Through the analysis of Structural Equation Models (SEM) it is possible to establish direct relations between the variables of human capital (graduates by area of higher education) and economic growth (GDP per capita). In addition, innovation outputs are analysed through industrial property registries (designs, patents and trademarks). The inclusion of these outputs assumes a mediating role, allowing to analyse the success of human capital through innovation. This study was applied to Portugal from 2000 to 2015 and the results suggest that human capital has a positive effect on GDP per capita. However, there were substantial differences in the impacts of different areas of higher education, suggesting a certain degree of difficulty in achieving successful results, since the mediating effect is significantly reduced. In this way, the need to adapt higher education, as well as the efforts made, is identified to achieve results that promote the creation of value.
Keywords: *Economic growth, Human capital, Innovation and Structural equation models*

1. INTRODUCTION

The study of the determinants of economic growth has been the subject of extensive literature and several studies have analysed the impact of numerous variables on GDP per capita. Human capital and innovation have deserved special attention as determinants of countries' economic growth (e.g. Barro 1991, Levine & Renelt 1992, Easterly & Levine, 1997, Valente, 2014). In the era of the knowledge economy, it is relevant to study the impact that these determinants have on GDP per capita. The concept of human capital regards to the set of intangible resources inherent to labour, which are associated with the knowledge and skills of individuals, acquired essentially through education and experience (e.g. Schultz, 1961; Nelson & Phelps, 1966; Veugelr & Del Rey, 2014; Rojas & Arroyo, 2016). Innovation includes the introduction of new or improved products, processes or services on the market, it may also include aspects related

to access to raw materials, as well as different business practices or the creation of new markets (e.g. Schumpeter, 1939; Drucker, 1997; Cunha, Rego, Cunha, Cabral-Cardoso, & Neves, 2016). Human capital is fundamental when it comes to delivering results at the level of innovation outputs, essentially at the intellectual property registers (ABS, 2002; World Bank, 2007, OECD, 2015). Given that human capital and innovation are essential to GDP per capita and since human capital is key to achieving the results of innovation it can be said that has a direct impact on economic growth as well as an indirect impact, through intellectual property registries. In this study it is presented the econometric model, formulated based on the previously mentioned concepts, allowing to draw conclusions regarding the fitness of the country's higher education for economic growth and innovation results.

2. ECONOMIC GROWTH

The concepts of growth and development establish such close and strong relationships among themselves that it is difficult to distinguish them and, as stated by the United Nations Development Program (UNDP) in the Human Development Report (2016), economic growth is an elementary starting point for development to be achieved, being fundamental to the wealth and well-being of nations. Similarly, Diniz (2010) says that it is not possible to think about development without growth, given that if an economy can't produce more than it consumes, through its growth, it becomes impossible to use the surpluses that lead to development. Economic growth can be defined as a country's ability to provide the economic goods necessary for its population in a sustainable way and so the production and improvement of goods and services is a crucial component of growth (e.g. Kuznets, 1973; Barro, 1991; Diniz, 2010). Economic growth is essential as a starting point for the development of strategies that lead to development and in this way, it is essential to adequately measure the economic growth of a country and in this sense, Sen (1997) considers that Gross Domestic Product (GDP) or GDP per capita are the best measures. Henderson, Storeygard & Weil (2012) point out that since GDP is the market value of all final goods and services produced in a country, net of imports, in each period, which is generally one year, it is important but still this variable does not reflect the country's full growth potential. GDP per capita allows for a more detailed assessment of the impact of GDP on income distribution and allows comparisons with previous periods as well as between countries. It is possible to find in literature a set of investigations that study the impact of several factors on the economic growth of the countries. In most of these investigations that present economic growth as a dependent variable, the most frequently used measure is GDP per capita (e.g. Barro, 1991; Easterly & Levine, 1997; Acemoglu, Johnson & Robinson, 2001; Leon-Gonzales & Vinayagathasan, 2013 and Valente, 2014). So, GDP per capita that is the best way of ensuring that any inequalities in income distribution are minimized.

3. KNOWLEDGE ECONOMY

3.1. Concept and Structure of Knowledge Economy

The term knowledge economy (KE) began to be used by the Organization for Economic Cooperation and Development (OECD) to characterize economies that are based on the production, distribution and use of knowledge and information (OECD, 2015) and according to the Australian Bureau of Statistics (ABS) (2002), this definition was broadened by the Asia-Pacific Economic Co-operation (APEC), where the APEC said that the main engine driving of wealth creation and employment in all industries is knowledge. ABS highlight that "KBE does not rely solely on a few high technology industries for growth and wealth production. Rather, all industries in the economy can be knowledge intensive, even so called 'old economy' industries like mining and agriculture." (ABS, 2002, p.2) Since knowledge economy is the current reality, it is verified that several organizations try to define the structure on which this concept is based.

As can be seen in Figure 1, the structure of knowledge economy is based on the relationship between the dimensions presented.

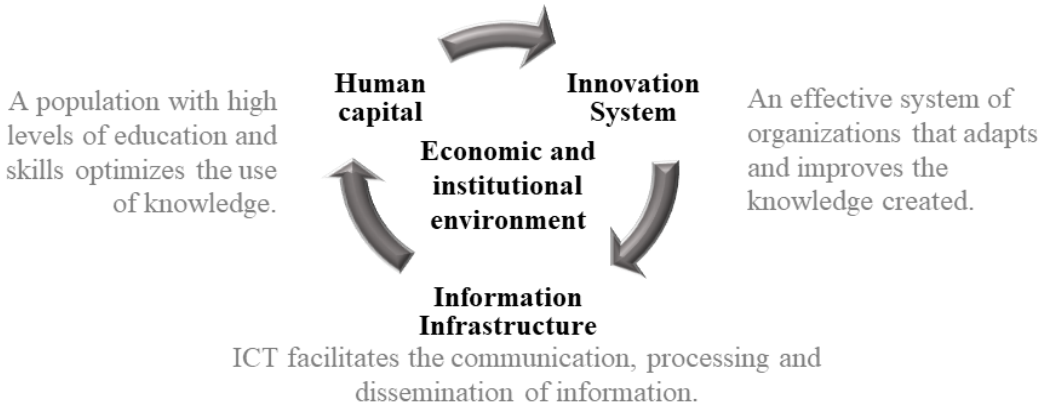

Figure 1: Structure of Knowledge Economy (Adapted from the ABS, 2002; World Bank, 2007 and OECD, 2015)

The dimensions of KE establish close relations among each other, enhancing the development of each one and the development of the remaining ones through the synergies created. Its success depends on a workforce of skilled workers who can continually update and adapt their skills. It is also recognized that it is essential an Innovation System capable of using knowledge, as well as contributing to the creation of more and better knowledge. The Information and Communication Technologies (ICT) are also fundamental to stimulate the rapid exchange of information within each of the previous dimensions, as well as between them, allowing a better adaptation of the knowledge created. The fourth-dimension concerns to the Economic and Institutional Environment that includes the creation of a stable and open macroeconomic environment with a structure of effective information and communication technologies capable of promoting the development and diffusion of innovation. Considering the research purposes of this study, are presented the literature review of the concepts of Human Capital and Innovation.

3.2. Human capital

Karchegani, Sofian & Amin (2013) consider that the role of intellectual capital in KE covers the human component that is essentially composed of knowledge, skills and competences, but also includes non-visible and non-human assets such as organizational processes. In the same sense, the OECD (2005) emphasizes that intellectual capital results from human capital (knowledge of individuals) and structural capital (combination of hardware, software, organizational structure, patents, trademarks and everything beyond organizational capacity).
Human capital, which is a relatively abstract concept, has been the subject of numerous attempts of definition. Schultz (1961) has defined this concept as a set of intangible resources of the labour that allow a continuous improvement of production. Nelson & Phelps (1966), on the other hand, emphasize that human capital it is essentially the knowledge resulting from the academic formation and skills that come from vocational training and professional experience. They are fundamental to the success of the most diverse professional activities, decode, understand and process information. Rojas & Arroyo (2016) denote that this concept is the result of innate competences (intellectual capacity) and acquired competences (acquisition of knowledge and skills). As a dimension of the KE it is possible to identify a set of characteristics, synthesized in table 1.

Characteristics	Description	Measures
Stock of qualified People	General level of instruction and formal qualification of the population.	• Average years of schooling of the population; • Number of people with PhD; • Immigration and emigration of skilled workers; • Expenditure on education (% of GDP); • Literacy rate; • Proportion of vocational programs.
Flow of qualified People	Loss and gain of workers with accumulated knowledge through schooling and professional experience.	
Formation of Human Capital	Expenditure on education and vocational training, by public and private entities.	
Lifelong learning and access to education	Promotion as well as ease of access to knowledge and formal education.	

Table 1: Characteristics of Human Capital as dimension of the Knowledge Economy (Adapted from the ABS, 2002; World Bank, 2007 and OECD, 2015)

3.3. Innovation

Schumpeter (1939) as defined innovation as the creation of a new or improved product, service or process, as well the opening of a new market, a new source of raw materials or semi-manufactures or a new form of industrial organization. The authors Cunha, Rego, Cunha, Cabral-Cardoso & Neves (2016) refer to innovation as the creation of new technological solutions, new work processes, new products, competition in new markets, establishments of new agreements with clients or suppliers, discovery of raw materials, new manufacturing processes, new ways to provide after-sales service, new *modus operandi* for the relationship with customers, among other practices. The concept of innovation covers a multiplicity of forms and Drucker (1997) extends his horizons with the idea of "creative imitation" as many companies choose to copy and imitate. As a dimension of the KE it is possible to identify a set of characteristics summarized in table 2.

Characteristics	Description	Measures
Potential for knowledge creation	Performance of basic research carried out by companies.	• Receipts related to the export of high technology products and services; • Registration of patents, trademarks and design; • Scientific publications; • R&D expenditure; • Number of researchers.
Creation of knowledge with commercial application	Expressed mainly by the increase of intellectual property records.	
Networks and knowledge flows	Knowledge sharing among companies, universities, state and other organizations.	
Innovation and support activities for Innovation	Introduction of new or improved products/processes in the market, supported by investments in R&D.	

Table 2: Characteristics of Innovation as a dimension of the KE (Adapted from the ABS, 2002; World Bank, 2007 and OECD, 2015)

As can be seen, the way to measure a country's innovative capacity, as well as the success of this capacity, is to evaluate aspects such as inputs and outputs of innovation. At the level of inputs human capital is essential and at the level of outputs we have the materialization and success of the efforts made.

4. METHODOLOGY

4.1. Introductory Remarks

Being the research question - What is the impact of Human Capital and Innovation on Portugal's Economic Growth? - then the objective of this study is to analyse the direct and indirect impact

of Human Capital on Economic Growth. Its indirect effect is evaluated through the mediating effect of Innovation outputs. And to answer the research question and reach the defined objective, we used the analysis of Structural Equation Models (ESM). The option for SEMs is related to the fact that this is a generalized modelling technique that allows to test the validity of theoretical models that establish causal relationships between variables, adding value to the proposed empirical study. The SEM presented allow us to establish a relationship that makes it possible to measure the direct impact of Human Capital on Economic Growth and the indirect impact through different forms of industrial property.

4.2. Data and definition of variables

The data collected are related to Portugal, with annual data referring to the period from 2000 to 2015. To do so, we used the PORDATA database, Database of Contemporary Portugal, organized and developed by the Francisco Manuel dos Santos Foundation. The selection of the indicators that represent the variables under study was carried out based on the literature review, where, relative to Economic Growth, GDP *per capita* is the indicator that brings together greater consensus as a measurement of the wealth generated by a country (e.g. Barro, 1991, Easterly & Levine, 1997, Acemoglu, Johnson & Robinson, 2001 and Valente, 2014). About Human Capital, Valente (2014), used disaggregated information, using the percentage of graduates in different areas of study. Similarly, the OECD (2015) highlights the importance of using information related to graduates by areas of education, allowing a more accurate assessment of the impact that they have on the results of Innovation and on the economy of the countries. To measure innovation were used the intellectual records. Authors like Sarkar (2014) and Valente (2014), as well as the European Commission through the EIS (2016) and the GII (2016), consider that these registers are indispensable when analysing innovation in a country. It should also be noted that, as defined by World Intellectual Property Organization (WIPO), intellectual property includes industrial property and copyright. In this study are considered the industrial property registries, that are considered as more representative of the innovative activity. The indicators used in this study were organized by the PORDATA database and were collected from the National Statistical Institute; the National Institute of Industrial Property and the Direction of Statistics of Education and Science of the Ministry of Education and Science. It was verified that, for the period under review, none of the collected indicators shows a series break or missing values, thus not compromising the viability of the selected sample. Table 3 summarizes the main information related to each of the variables of this study, as well as the indicators that represent them, their source and description.

Table following on the next page

Variable and Source	Indicators and Description	
Economic growth (National Institute of Statistics)	GDP *per capita*: Measure used to evaluate the performance of the economy and can be considered the measure of the wealth that the country can create, per citizen.	
Innovation (Industrial Property: Registrations granted**)** (National Institute of Industrial Property)	Patents: Official license granted to protect an invention, having to fulfil requirements regarding the novelty, inventiveness and industrial applicability.	
	Trademarks: Sign that identifies products/services, distinguishing them from others, reflecting the expectation of a different service and risk-free of imitations.	
	Design: Design or model that protects the appearance characteristics of the whole or part of a product. The possibility of registration implies, as in previous ones, the fulfilment of the mentioned requirements.	
Human Capital (Graduates) (Direction of Education and Science Statistics of the Ministry of Education and Science)	Education	Graduates are those who have successfully completed higher education (advanced academic, vocational or professional education, corresponding to higher education of short cycle, bachelors or equivalent, masters or equivalent, and doctorates or equivalent), in accordance with the revised International Standard Classification of Education (ISCED) classification.
	Arts and Humanities	
	Social Sciences, Commerce and Law	
	Science, Mathematics and Informatics	
	Engineering, Industry and Construction	
	Agriculture, forestry, fisheries and veterinary sciences	
	Health and Social Protection	
	Services	

Table 3: Variables used in the SEM (*Adapted from PORDATA, National Statistical Institute, National Institute of Industrial Property and Direction of Statistics of Education and Science of the Ministry of Education and Science*)

4.3. Formulation and Specification of Structural Equation Models (SEM)

SEM are a statistical technique that quantify cause and effect relationships described by a theoretical model and for this it links regression analysis, path analysis and factor analysis. "The term structural equation modelling (SEM) does not designate a single statistical technique but instead refers to a family of related procedures. Other terms such as covariance structure analysis, covariance structure modelling, or analysis of covariance structures are also used in the literature to classify these techniques under a single label." (Kline, 2016, p. 9) Kline (2016) states that after formulating the theoretical model, it must be specified the relations between manifest and / or latent variables as well as the restrictions to be imposed, including errors and correlations. The specified SEM relates Human Capital directly to Economic Growth and the variables related to innovation outputs (Designs, Patents and Trademarks) are mediating variables, allowing to assess the impact of Human Capital in these and the indirect impact on economic growth. Figure 2 shows this relation considering Human Capital as a latent variable, resulting from the various areas of higher education, and Figure 3 considers Human Capital as a manifest variable, having been replaced by each of the different areas of higher education.

Figure following on the next page

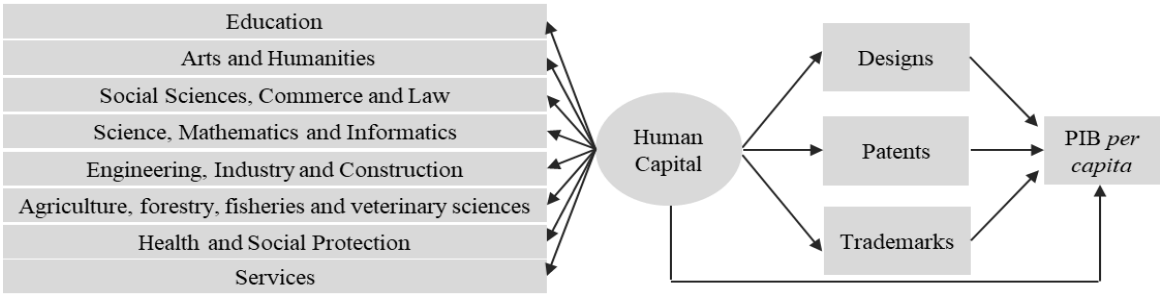

Figure 2: Specification of the theoretical model, with measure of Human Capital (latent variable) on Economic Growth, with effect of mediation through Innovation

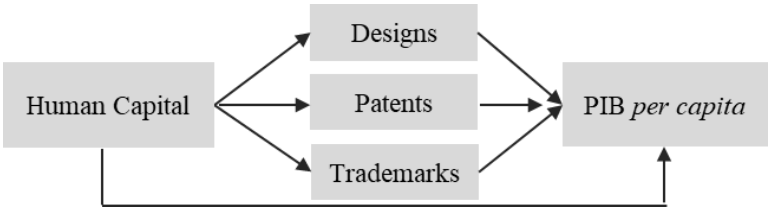

Figure 3: Specification of the theoretical model, with measure of Human Capital (manifest variable) on Economic Growth, with effect of mediation through Innovation

4.4. Evaluation of the quality of adjustment of the models

The adjustment method used in the models was the maximum likelihood method and the model is valid when it satisfies the various tests and indices, namely: Qui-square adjustment test ($\chi 2$); Goodeness of Fit Index (GFI) as absolute index; Comparative Fit Index (CFI) as relative index; Root Mean Square Error of Approximation (RMSEA) as an index of population discrepancy; Modified Expected Cross-Validation Index (MECVI) as an index of population discrepancy.

The models were estimated, and the significance of the regression coefficients was evaluated after the estimation of the parameters by the maximum likelihood method implemented in the software AMOS (V.21, SPSS An IBM Company, Chicago, IL). The model that considers Human Capital as a latent variable presented a mediocre adjustment quality, and it was necessary to exclude the training area in Agriculture, Forestry, Fisheries and Veterinary sciences, since it does not share the same correlation structure as the other areas. The models that consider Human Capital as a manifest variable, relative to each training area, all presented an excellent quality of adjustment, except for the model related to training in Agriculture, Forestry, Fisheries and Veterinary sciences.

5. RESULTS AND DISCUSSION

The global model that considers human capital as a latent variable, constructed based on the training areas present in figure 3, explains 92% of GDP per capita variability. Only the path that relates human capital directly to GDP per capita is statistically significant, and it is confirmed that human capital contributes positively to the country's economic growth. The indirect paths are not statistically significant, although the paths that relate human capital to the outputs of innovation are. However, the paths between innovation output and GDP *per capita* are not statistically significant and it is not possible to confirm that human capital contributes through innovation to the economic growth of the country.

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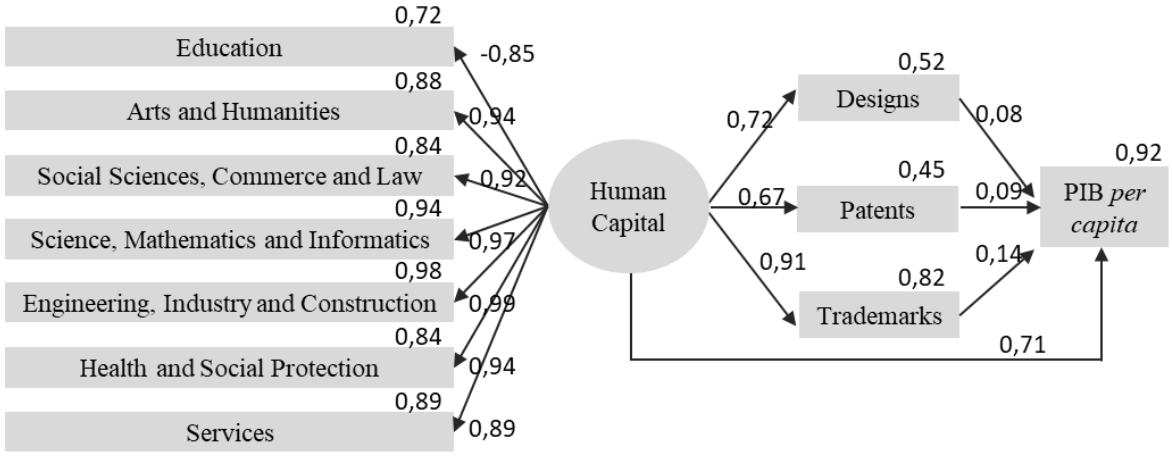

Figure 4. Measurement model of Human Capital as a latent variable (excluding training in Agriculture, Forestry, Fisheries and Veterinary Sciences) on Economic Growth, with effect of mediation through Innovation (AMOS, V.21, SPSS An IBM Company, Chicago, IL)

Since the analysis of the global model is not entirely conclusive and it does not allow distinguishing the impacts of the several areas of higher education, nor in what way these have an effect when mediated through innovation, it becomes essential to analyse the models that make it possible to study each area of higher education by itself. The models referring to human capital, represented by each area of higher education, present the following results:

- Education - The model for this training area explains 89% of GDP per capita variability, but its effect is negative, both directly and indirectly. Its impact on economic growth has a coefficient of -0.31 and its total indirect impact (through the three paths of innovation) is -0.56.
- Arts and Humanities - In this model the explained variability of GDP per capita is 89%. This area of higher education has a positive direct impact on the country's economic growth (0.34). Its indirect impact is also positive, but only through Designs and Trademarks registrations, with a total indirect effect of 0.45.
- Social Sciences, Commerce and Law - This model explains for 86% of GDP per capita variability and has a positive indirect impact on economic growth through the three mediation paths related to industrial property registries, with a total impact of 0.69. Its positive impact on economic growth can't be determined since the path that establishes a direct relationship between this area of higher education and GDP per capita is not statistically significant.
- Science, Mathematics and Informatics - The model for this area of higher education explains 90% of GDP per capita variability. Training in Science, Mathematics and Informatics has a direct positive impact (0.46) on the country's economic growth. Its indirect impact is only 0.10, being mediated only by trademark registrations, since the remaining paths of mediating effect are not statistically significant.
- Engineering, Industry and Construction - Considering this area of higher education, we obtain a model that explains 90% of GDP per capita variability, where only the direct effect can be commented, with a positive direct impact (0.53) on economic growth. The three paths of mediating effect on GDP per capita are not statistically significant, and the indirect impact of this area of higher education on the economic growth of the country can't be assessed through the results of innovation.
- Health and Social Protection - This model explains 92% of GDP per capita variability. In this case the direct impact of this area of higher education on the country's economic growth

is 0.65. Its total indirect impact is 0.12, being mediated only through design registrations, since the remaining paths are not statistically significant.

- Services - As for this model it explains 97% of GDP per capita variability, with a positive direct impact (0.82) on economic growth. Its indirect impact is also positive (0.26), being mediated only through trademarks registrations, since the remaining indirect paths are not statistically significant.

It is also important to highlight that in the various models presented and that have a positive impact on the economic growth of the country, the paths that link the variables related to the different areas of higher education and the results of innovation (industrial property registries) are positive and statistically significant. However, the indirect effect of the various areas of higher education, can't in several cases to be evaluated since the paths that establish the relationship between the outputs of innovation and the GDP *per capita* are not statistically significant.

6. CONCLUSION

Using a set of representative variables of human capital and innovation in Portugal, for the period from 2000 to 2015, it was studied the impact of this dimensions on the country's economic growth. Human capital was analysed through the number of graduates in different areas of higher education. Innovation was studied through intellectual property registers, namely granted industrial property registrations (designs, patents and trademarks). Finally, GDP *per capita* was used to measure the country's economic growth. The formulation and specification of Structural Equation Models was supported in the literature review, which made it possible to relate human capital to innovation and its impacts on economic growth. The use of these models provides the advantage of jointly applying factorial analysis and linear regression, as well as establishing direct relations and relations of mediating effect among the variables. The results suggest that human capital is vital to Portugal's economic growth, contributing directly to the country's economic growth. It was possible to draw this conclusion through the global SEM that evaluated human capital as a construct resulting from the various training areas, where the latent variable has a positive direct impact on GDP *per capita*. Human capital, as a latent variable, despite having positive coefficients in the mediating trajectories, are not statistically significant and, therefore, it is not possible to determine the indirect impact of human capital on economic growth. The model related to the higher education in Education has a direct and indirect negative impact on the country's economic growth. It was not possible to estimate the impact of the higher education in Agriculture, Forestry, Fisheries and Veterinary Sciences, since its specific SEM was not validated. The remaining areas of higher education had a direct positive impact on economic growth, except for higher education in Social Sciences, Commerce and Law, where its trajectory was not statistically significant. As to the indirect impact of the different areas of higher education on the economic growth of the country, it was possible to see that, in most areas, the paths of mediating effect are not statistically significant and consequently it is not possible to confirm the existence of an indirect impact of the human capital in economic growth through the results of innovation. Based on the results mentioned, this study highlights the importance of analysing the adequacy of the country's higher education, as well as the results of the innovation and if they are effectively oriented to the achieve economic results. This study highlights the need to adapt higher education to innovation, that is, in the era of the knowledge economy, where these dimensions are central to the growth and development of the country, it is fundamental to analyse if the formation that is given allows to develop and contribute to research leading to the desired results. Nevertheless, the conclusions drawn this study presents some limitations. The data used relate to the period from 2000 to 2015 – only 16 years – and the ideal would be to have a greater number of years

for analysis. It should also be noted that, since the study was carried out only for Portugal, it is not possible to induce the conclusions of this analysis to other countries. However, this limitation raises a question of research in relation to other economies, since the same methodology can be applied to other countries, assessing and comparing the adequacy of higher education and innovation results. Given that these dimensions are part of the knowledge economy the study could be extended by including the remaining dimensions, namely ICT and the Economic and Institutional Environment.

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INTEGRATING RESILIENCE AND SUSTAINABILITY INTO THE CORE ORGANIZATIONAL STRATEGY – IS IT POSSIBLE OR IMPERATIVE?

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ABSTRACT

Resilience and sustainability have (relatively) recently emerged as two of the major challenges that organizations have to deal with in their strategic search for performance and competitiveness. Although different, these two challenges are rather complementary – as resilience basically is the capacity/ability of an organization to recover/rebound and move on (by even improving itself) after a disturbance (e.g. any kind of black swan event), while sustainability basically is the ability of an organization to combine (on the long-run and in a non-detrimental manner for society at large) economic, social and environmental concerns (and goals) into its strategy. Thus, resilience and sustainability should probably be interdependently approached, as two organizational abilities that reinforce each other, into an unbroken spiral of strategic performance. Among academia, the opinions seem to be quite scattered (and even contradictory) when it comes to dealing with sustainability and resilience (as strategic organizational goals): some researchers are treating them as interchangeable, while others are arguing that they are independent; if taking them separately, some researches are advocating for the need of a distinct, dedicated strategy (aiming for sustainability or resilience), while others are asserting that organizations need to integrate sustainability or resilience goals into their core strategy in order for them to be effectively (and efficiently) achieved. Given the above-mentioned, the main objectives of this paper are: (1). to demonstrate that resilience and sustainability are two complementary features that organizations need to embrace and possess in order to successfully survive on the long-run; (2). to argue that resilience and sustainability goals need to be brought together into a common flexible strategic framework, integrated into the core organizational strategy; (3). to emphasize on the main tools and instruments organizations need to develop in order to gain a resilience-and-sustainability-based competitive advantage.

Keywords: *Organizational challenges, Resilience, Strategic approach, Sustainability*

1. INTRODUCTION

Firm performance and competitiveness are the main goals of any organizational strategy, and the primary indicators of its success – if measured against its own past results and, more importantly, if (dynamically) compared with those of its competitors. The particular approach each firm is embracing (through its top management) during its strategy journey is basically reflected into its development path and into the dynamics of its competitive position; as witness of firms' struggles to succeed, (business) history is providing the full evidence and the real measure of their long-run performance and competitiveness, while validating (or not) the different approaches and strategies. As if this "operational" framework was not enough for firms to deal with, two apparently different (but rather complementary) "strategic" challenges have (relatively) recently emerged, making the search for performance and competitiveness even more difficult, while adding new dimensions and valences to the assessment of firms' success: (a). resilience – which basically defines the capacity/ability of an organization to recover/rebound and move on (by even improving itself) after a disturbance (e.g. any kind of black swan event) (Mallak, 1998; Tengblad, 2018); and (b). sustainability – which basically defines the ability of an organization to combine (on the long-run and in a non-detrimental

manner for society at large) economic, social and environmental concerns (and goals) into its strategy (Coblentz, 2002; Montiel, Delgado-Ceballos, 2014). The two challenges (resilience and sustainability) have become (more or less consciously and/or strategically assumed) major organizational concerns and desiderates – and academia have started to consistently (but rather independently) explore the paths towards, the main characteristics and behaviors, as well as the competitiveness of two new kinds of organization: the resilient organization/corporation (Acar, Winfrey, 1994); Beer, Eisenstat, Foote, 2009) and the sustainable one (Elkington, 1994; Soyka, 2012). But opinions seem to be quite scattered (and even contradictory) amongst scholars – when it comes to dealing with sustainability and resilience as strategic goals: (a). some researchers are treating them as interchangeable (Tobin, 1999), while others are arguing that they are independent/separate (Redman, 2014); (b). if taking them separately, some researches are advocating for the need of a distinct, dedicated strategy aiming for sustainability (White, 2009) or resilience (Seville, 2008), while others are asserting that organizations need to integrate sustainability or resilience goals into their core strategy in order for them to be effectively (and efficiently) achieved (Asif, Searcy, Zutshi, Ahmad, 2011; Starr, Newfrock, Delurey, 2003); (c). last, but not least, some researches are endorsing the synergies that are able to occur when sustainability and resilience are treated as different, but complementary to each other, targets (Fiksel, 2006; Winnard, Adcroft, Lee, Skipp, 2014). This incongruence of opinions reflects the fact that the topic covers an evolving territory of practice and an emerging field of research – as neither resilience nor sustainability deals with "business as usual", and their (practical and theoretical) business-related approaches have rather been "borrowed" from other domains (e.g. ecology, engineering, medicine, policy) – which need further consolidation and refinement. The good news is that the solution is seeming to come from the same directions where the problem is originated: the growing interest (amongst both practitioners and scientists) in overcoming the challenges of resilience and sustainability – by capitalizing on them as organizational abilities/capacities and authentic sources of competitive advantage – could be explain if taking a broader view and a more in-depth perspective – in search of context. The antecedents have very much to do with two interconnected processes that have dominated the evolution of the global landscape during the last decades, shaping (for better or worse) the strategic behavior of organizations and shifting the overall view on organizational success: the increasing complexity of the global system and the intensifying of the globalization process. These two processes not only have "complicated" the existence of firms, but they have also contributed to the emergence of new (fields of) sciences, able to provide a deeper understanding of the ongoing (complex interplays amongst) processes and phenomena, as well as the methods and instruments needed in order to properly deal with them. Given the above-mentioned, the main objectives of this paper are: (1). to demonstrate that resilience and sustainability are two complementary features that organizations need to embrace and possess in order to successfully survive on the long-run; (2). to argue that resilience and sustainability goals need to be brought together into a common flexible strategic framework, integrated into the core organizational strategy; (3). to emphasize on the main tools and instruments organizations need to develop in order to gain a resilience-and-sustainability-based competitive advantage. The remain of the paper will be developed around these three objectives, in order to answer – through the content comparative analysis of specialized literature – the main research question formulated in the paper's title, while proposing a new research agenda (based on a holistic systemic approach) in the field of organizational strategy.

2 RESILIENCE AND SUSTAINABILITY – DIFFERENT BUT TOGETHER, FOR LONG-RUN FIRM PERFORMANCE

As regards the "fundamentals" of organizational resilience and organizational sustainability (Table 1), the analysis of the two dimensions reveals that the two concepts are definitely different; although, both abilities / capacities:

- ✓ have a clear time-related dimension and can only be validated on the long-run, successful surviving being the supreme test of their measure;
- ✓ are quite difficult to be "objectively" assessed, as they are both based on rather "subjective" and/or "soft" interpretations and skills (such as "situation awareness" or "ethical use of resources");
- ✓ resilience have both an operational dimension and a strategic one, while sustainability is, *par excellence*, a strategic construct (grafted on the "sustainability imperative" megatrend), with interrelated components/valences – especially emphasizing on the "classical" economic, social and environmental ones;
- ✓ apply (preferably) proactively to the entire organization – viewed as a complex adaptive system, operating and trying to succeed within a complex global world;
- ✓ are responding to different kinds of "aggregated risks" that are complex (increasingly diverse and dynamic) and "tricky" (generating black swan events or butterfly effects);
- ✓ are vital to overcome distinct/specific kinds of risks/disruptions while (continuously) consolidating the overall position of the organization – through strategic integration of system thinking and system analysis, holistic approach, stakeholder management, and business continuity management;
- ✓ have been intensely and extendedly analyzed by academia during the last decades, different streams of research being developed in accordance with both the new realities and trends that have successively characterized organizations and theirs environment, and the new theories emerged (in different field of research).

Table following on the next page

Table 1: Resilience and sustainability – the fundamentals

Resilience	Sustainability
Concept	
"enterprise resilience is the ability and capacity to withstand systemic discontinuities and adapt to new risk environments" (Starr, Newfrock, Delurey, 2003); "resilience is a function of an organization's: situation awareness, management of keystone vulnerabilities and adaptive capacity in a complex, dynamic and interconnected environment" (McManus, Seville, Brunsden, Vargo, 2007).	"sustainability can (…) be defined as meeting the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc), without compromising its ability to meet the needs of future stakeholders as well" (Dyllick, Hockerts, 2002); "the equitable, ethical and efficient use of social and natural resources" (Norberg, Cumming, 2008).
Dimensions / components	
"operational resilience – the ability to respond to the ups and downs of the business cycle – and strategic resilience – the ability to dynamically reinvent business models and strategies as circumstances change" (Hamel, Valikangas, 2003).	"environmental, economic and social" (Crane, Matten, 2016); "social, ecological, economic, spatial, institutional-political, and cultural" (Cagnin, Loveridge, Butler, 2005).
System	
"to understand a system's resilience, it is important to identify the capabilities and capacities of important parts of the system, and to examine how they interact with one another and with their environment to predict key performance outcomes at different levels of analysis before and after a disruptive event" (Van Der Vegt, Essens, Wahlström, George, 2015).	"true sustainability involves applying systems thinking to anticipate unintended consequences that can occur when the entire system is not taken into account" (Laszlo, Zhexembayeva, 2017).
Drivers / challenges	
"deep tier risks (..), corporate responsibility, cybersecurity, long-term disruptions, business continuity planning, emergency operations centers, detection, and systemic disruptions" (Sheffi, 2015).	"pressure of stakeholders (investors), legislation, building reputation, competitive advantage, reducing risks" (Haywood, Van der Watt, 2016); "declining resources, radical transparency, and increasing expectations" (Laszlo, Zhexembayeva, 2017).
Approach	
"resilience research has developed into five research streams, or lines of enquiry, which view resilience as: (1) organizational responses to external threats, (2) organizational reliability, (3) employee strengths, (4) the adaptability of business models or (5) design principles that reduce supply chain vulnerabilities and disruptions" (Linnenluecke, 2017).	"it is possible to separate the different sustainable development definitions into the following categories: (1) conventional economists' perspective; (2) non-environmental degradation perspective; (3) integrational perspective; (4) inter-generational perspective; and (5) holistic perspective" (Lozano, 2008).

3. RESILIENCE AND SUSTAINABILITY – IN SEARCH OF A COMMON STRATEGIC FRAMEWORK AT ORGANIZATIONAL LEVEL

As regards the "management and strategic approach" of organizational resilience and organizational sustainability (Table 2), the analysis reveals the following:

- ✓ in search of the bottom line, both the resilient organization and the sustainable one are based on rather metaphorical approaches – as "in a truly resilient organization, there is plenty of excitement, but there is no trauma" (Hamel, Valikangas, 2003), while in a sustainable organization, the "triple bottom line" (reuniting profit, people and planet) or "permanence" are the guiding principles;

- ✓ a series of contradictions (and even conflicts) is possible to occur not only if trying to simultaneously reach the bottom lines of resilience and sustainability, but also if addressing just one challenge at a time – as the three components of organizational sustainability are extremely difficult to be properly managed under the circumstances of resource limitation, on one hand, and the "revolutionary change" defining organizational resilience has to be smoothly implemented through "evolutionary steps", one the other hand;
- ✓ as neither resilience nor sustainability can be ignored by organizations, ambidexterity can be a solution for organizations dealing with the challenges of their bottom line(s) – and the ambidextrous organization one that is capable to successfully integrate the opposites of exploiting and exploring into a strategic dynamic capability (Raisch, Birkinshaw, 2008; De Oliveira Teixeira, Werther Jr, 2013);
- ✓ the "seven principles for managing the unexpected" – which defines resiliency in its broader sense (Seville, Van Opstal, Vargo, 2015) – are, in some significant aspects (leadership, social capital/people, opportunities/systems thinking), quite similar to the "business sustainability principles" (Pojasek, 2007); moreover, amongst the two sets of principles, there is no one to come in conflict with the others – aspect which advocates, once more, for the integration of resilience and sustainability in order to increase their potential and to capitalize on it;
- ✓ "the resilience management process" (McManus, Seville, Brunsden, Vargo, 2007) and "the main milestones along the path toward achieving true sustainability" (Mirchandani, Ikerd, 2008) are two frameworks designed by academia in order to manage the processes towards a resilient and a sustainable organization respectively. Although both are following a (somehow similar) gradual approach, they also manifest significant differences; thus:
  - (a) with reference to the first phase of the two processes – awareness of "resilience issues" and "sustainability impacts": both are challenging organizations, but the first are rather "independent/external" issues (which may or may not: be accurately foreseen and/or actually occur as they were predicted), while the latter are direct consequences of the organization's decisions and behaviors;
  - (b) the "self-assessment and benchmarking" phase that follows the "acknowledgement of the sustainability impacts" (Mirchandani, Ikerd, 2008), in addition to providing valuable insights on how the organization performs with respect to the sustainability dimensions, it also helps the organization to position itself amongst their peers, which is essential when searching for competitiveness; this polycentric – stakeholder management and system integration – perspective is confirmed and strengthened during the next four steps of the process (Mirchandani, Ikerd, 2008);
  - (c) on the other hand, "the resilience management process" is rather an "organization centric" one – even if: (c1) in order to identify the 'resilience issues" the organization has to carefully explore its external environment, (c2) the "essential organizational components" have to be mapped against key stakeholder groups, and (c3) the assessment of the "increasing adaptive capacity" is made (especially) against the external environment; (McManus, Seville, Brunsden, Vargo, 2007);
- ✓ the strategies organizations embrace in their paths towards resilience and sustainability are suitable for a progressive approach, as they basically evolve: from resistance and maintaining the status quo to flexibility and adaptation to "extreme circumstances and sudden shocks" (Gibson, Tarrant, 2010) – and from "risk mitigation" to "holistic sustainability strategy" (Baumgartner, Ebner, 2010) respectively;
- ✓ at a first glance, the strategic goals seem to differentiate quite a lot the two approaches – as the sustainability strategy's goal is rather "statically" expressed, in terms of the three defining dimensions, while the resilience strategy's one is (much more) "dynamic", and less

specific; but this is only an apparent perception, which is irrefutably shattered at a closer, more in-depth look;

- ✓ the resilient organization, as well as the sustainable one are, ultimately, able to gain competitive advantage, "curing" by this way the "obsession" of competitiveness – as strategic goal validated through the strategic positioning of an organization/firm within an industry and amongst its peers; the juxtaposition of resilience and sustainability, and the simultaneous pursuit of both could only be beneficial for the organizations in search of performance and competitiveness – into an increasingly complex, turbulent, volatile and disruptive global system.

Table 2: Resilience and sustainability – management and strategic approach

Resilience	Sustainability
Bottom line	
"a company where revolutionary change happens in lightning-quick, evolutionary steps – with no calamitous surprises, no convulsive reorganizations, no colossal write-offs, and no indiscriminate, across-the-board layoffs" (Hamel, Valikangas, 2003); "the resilient company (…) uses its financial, technical and social resources: (1) to develop long-term skills and competencies (2) in an efficient, reliable and flexible manner, (3) in order to manage challenges and exploit opportunities" (Tengblad, Oudhuis, 2018).	"business is sustainable when it lives up to the <<triple bottom line>> of economic prosperity, environmental quality and social justice. The three bottom lines are interrelated, interdependent, and partly in conflict" (Elkington, 1997); "the elemental purpose of the sustainable organization is permanence, the ability to meet the needs of the present without compromising the future" (Mirchandani, Ikerd, 2008).
Principles	
"adaptive capacity, leaders people want to follow, learning organization, build social capital, resilience as a team sport, operational excellence, and see the opportunities" (Seville, Van Opstal, Vargo, 2015).	"leadership, stakeholders, systems thinking, people, continuous improvement, information and knowledge, business responsibility, sustainable results" (Pojasek, 2007).
Management process	
"the resilience management process involves: (1) building an awareness of resilience issues; (2) selection of essential organizational components; (3) self-assessment of vulnerability; (4) identification and prioritization of keystone vulnerabilities; (5) increasing adaptive capacity" (McManus, Seville, Brunsden, Vargo, 2007).	"some of the main milestones along the path toward achieving true sustainability are: (1) awareness and self-assessment; (2) stakeholder engagement; (3) strategy; (4) sustainability reporting; (5) system-wide integration" (Mirchandani, Ikerd, 2008).
Strategies	
"there are four broad strategic approaches that can be taken to start building improved resilience: (1) resistance, (2) reliability, (3) redundancy, and (4) flexibility" (Gibson, Tarrant, 2010).	"there are different types of sustainability strategy: (1) introverted, (2) extroverted, (3) conservative, and (4) visionary" (Baumgartner, Ebner, 2010).
Strategy goal	
"a strategy that is forever morphing, forever conforming itself to emerging opportunities and incipient trends" (Hamel, Valikangas, 2003).	"imagined and implemented fully, sustainability drives a bottom-line strategy to save costs, a top-line strategy to reach a new consumer base, and a talent strategy to get, keep, and develop employees, customers, and your community" (Werbach, 2009).
Competitiveness	
"a resilient organization effectively aligns its strategy, operations, management systems, governance structure, and decision-support capabilities so that it can uncover and adjust to continually changing risks, endure disruption to its primary earning drivers, and create advantages over less adaptive competitors" (Starr, Newfrock, Delurey, 2003).	"visionary – holistic sustainability strategy: focus on sustainability issues within all business activities; competitive advantages are derived from differentiation and innovation, offering customers and stakeholders' unique advantages" (Baumgartner, Ebner, 2010).

4. OPERATIONALIZING THE RESILIENCE-AND-SUSTAINABILITY-BASED COMPETITIVE ADVANTAGE

As regards the "institutionalization and implementation" dimension of organizational resilience and organizational sustainability (Table 3), the analysis reveals the following:

- ✓ resilience and sustainability are both abilities/capabilities that can only *post factum* be evaluated in terms of reaching their potential, and the scientific literature provides different sets of determinants/criteria on this subject; they allow organizations to evaluate their position against the main challenges raised by the two imperatives, and to develop their strategies accordingly, in an integrative manner;
- ✓ in order to meet the above-mentioned criteria organizations (may) adopt different approaches – generic models: (a). as concerns resilience – aware that "there is no quick fix, no single process, management system or software application that will create resilience", organizations will have to choose the appropriate model based on the "organization's level of maturity and the context it operates within" (Gibson, Tarrant, 2010); (b). as concerns sustainability – the new "sustainable activity model" (a nowadays adaptation of Porter's value chain model) "provides an improved strategy model for firms interested in creating *resilient and sustainable* businesses" (McPhee, 2014), while the "integrated organizational change model for sustainability" (built on the original sustainability six phase model) aims at valorizing the fact that "*sustainable organizations are resilient* and create economic value, healthy ecosystems and strong communities (Perrott, 2014);
- ✓ the assessment frameworks organizations could employ to manage the processes and evaluate the progress towards resilience and sustainability are quite comprehensive and complex: the "nine-item organizational resilience scale" (Kantur, Say, 2015) construct basically emphasizes on the main characteristics a resilient firm displays. On the other hand, "the Sustainability Balanced Scorecard" is an upgraded version of the classical BSC model, which integrates "the three pillars of sustainability into a single and overarching strategic management tool" (Figge, Hahn, Schaltegger, Wagner, 2002), while the "Springboard to SEE (sustainable enterprise excellence) assessment model (…) enables both enterprise progress toward SSE and enterprise to enterprise comparability" (Edgeman, 2013);
- ✓ in terms of metrics, a variety of indicators/indexes has been developed – although, as concerns resilience, it is more difficult (or, maybe, "too early") to "translate it into reliable numbers"; talking about sustainability, on the other hand, numerous systems of indicators and indexes have emerged (coming from academia and/or different organizations).

Table following on the next page

Table 3: Resilience and sustainability – institutionalization and implementation

Resilience	Sustainability
Diagnosis	
"seven determinants define an enterprise as resilient and able to face economic and social shocks: (1) product focalization; (2) geographic focalization; (3) quickness in the decision; (4) organizing structure based on the clan model; (5) strong national imprinting–business values; (6) "customer centricity"; (7) an efficient system of incentives for strategic aims" (Sabatino, 2016).	"business sustainability criteria: "(1) value creation; (2) primary corporate attitude; (3) primary focus; (4) strategy; (5) market definition and positioning (6) product & services; (7) governance & leadership; (8) type of CEO; (9) type of companies; (10) sustainability implementation; (11) processes; (12) reporting; (13) stakeholder influences" (Muff, Dyllick, 2014).
Generic model	
"conceptual models: (1) integrated functions model (developed around risk management); (2) attributional resilience model (emphasizing on the features of highly resilient organizations); (3) composite resilience model (stressing on the role of strategy and policy for achieving operational duality); (4) herringbone model (involving the contextual interplay between capabilities, activities and characteristics); (5) resilience triangle model (underlining the centrality and fluidity of: process capabilities; resources and infrastructure capabilities; and leadership, people and knowledge capabilities)" (Gibson, Tarrant, 2010).	"the sustainable activity model provides a framework for identifying and selecting activities that can help to create sustainable value for the firm: product-focused activities: acquire – create – deliver – support – recover (…margin and reputation…) – and sustaining activities – people, relationships, systems, ideas, and infrastructure" (McPhee, 2014); the "integrated organizational change model for sustainability (…) provides a blueprint of the stages an organization may go through along its path towards becoming a sustaining entity; (Perrott, 2014).
Assessment framework	
the resilient organization: "(1) stands straight and preserves its position; (2) is successful in generating diverse solutions; (3) rapidly takes action; (4) develops alternatives in order to benefit from negative circumstances; (5) is agile in taking required action when needed; (6) is a place where all the employees engaged to do what is required from them; (7) is successful in acting as a whole with all of its employees; (8) shows resistance to the end in order not to lose; (9) does not give up and continues its path" (Kantur, Say, 2015).	"the Sustainability Balanced Scorecard" – an instrument for performance measurement and a procedural approach to sustainability management" (Figge, Hahn, Schaltegger, Wagner, 2002); "Springboard to SEE: 6 primary compasses - each one assessed based on 4 criteria: (1) strategy and governance; (2) process implementation and execution; (3) financial performance results; (4) sustainability performance results; (5) innovation performance results; (6) human capital performance results" (Edgeman, 2013).
Indicators and indexes	
"no matter what type of organization, large or small, for-profit or not-for-profit, these 13 indicators of resilience apply: (1) leadership; (2) staff engagement; (3) situation awareness; (4) decision making; (5) innovation and creativity; (6) effective partnerships; (7) leveraging knowledge; (8) breaking silos; (9) internal resources; (10) unity of purpose; (11) proactive posture; (12) planning strategies; (13) stress testing plans" (Seville, 2016).	"the Sustainable Organization Performance Index" (Hubbard, 2009); "the Complex Performance Indicator" (Dočekalová, Kocmanová, 2016); "Sustainability Accounting and Reporting Frameworks: (1) Key Performance Indicators for Environmental, Social & Governance Issues, Version 3.0; (2) Sustainable Development-KPI Standard; (3) G4 Guidelines GRI" (Nagel, Hiss, Woschnack, Teufel, 2017).

5. CONCLUSION

Exhibiting both similarities and differences (Xu, Marinova, Guo, 2015), resilience and sustainability are two strategic challenges firms have to deal with – in an era of turbulences, complexity, uncertainty and disruption like ours. But, as realities are (rapidly) changing, so has to happen to the ways firms are handling "strategy paradoxes to create competitive advantage" (De Wit, Meyer, 2010). Thus, this might be the perfect time for a new research agenda – built on the ambidextrous approach (Turner, Swart, Maylor, 2013) – and aiming to integrate resilience (seen as an adaptation process) and sustainability (seen as a transformation process) into a common – complex, dynamic and flexible – framework, able to capitalize on the resilience-and-sustainability-based competitive advantage.

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POVERTY AND EXTREMES IN NUTRITIONAL STATUS OF CHILDREN

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ABSTRACT

Child poverty has the most severe consequences by far. It affects child's nutritional and overall health status, and if prolonged affects health in adulthood, reduces quality of life and reduces life expectancy. About 385 million or 20% of children under the age of 18 worldwide live in poverty. Children from low-SES countries are more prone to extremes in the sense of their nutritional status, from undernourishment to obesity, along with the disturbances in all other health-related indicators. While the number of underweight children dropped, the number of overweight and obese children skyrocketed and projections for the near future are not bright. Health consequences and the quality of life of both underweight and obese children are immense, and extend far beyond individual, affecting the whole society. Yet, all extremes in nutritional status of children are related to inadequate intake of nutrients, i.e. unbalanced diet. Out of all nutrients, children are especially sensitive to insufficient dietary intake of iron because it directly affects normal growth and development. However, insufficient iron intake is usually discussed from the aspect of undeveloped or developing countries affected with food insecurity or famine but the issue of iron is global. Nowadays we are evidencing many nutritional deficiencies in well-developed countries, the ones that were once a "privilege" of undeveloped countries. The reason lies in the social inequality, which, among many other consequences, lead to increased number of working poor, more of the so called food deserts, etc. In the time of economic insecurity, and fall in SES highly nutritious foods are the first ones being cut from a diet. The aim of the paper is to describe detrimental effects of poverty on child's health and development, and to propose a set of various economic, fiscal, social, educational and health measures to reduce consequences of high child poverty rates.

Keywords: *child poverty, health consequences, social inequality, state of nourishment*

1. INTRODUCTION

On September 20, 2016 the United Nations declared the Decade of Action of Nutrition (2016-2025) with the main aim is to strengthen national commitments to end malnutrition in all its forms (UN, 2016). Overweight and obesity have reached pandemic proportions, and especially alarming are the rates among children and adolescents (Ng et al. 2014). One in every five children aged 5 to 19 on the planet is either obese or overweight (NCD-RisC, 2017). Childhood obesity is one of the most serious public health challenges of the 21st century (WHO, 2017). The consequences are unforeseeable, life-long and extend far beyond the individual level. The World Health Organization has listed poverty as the main predictor for hunger, communicable and non-communicable diseases (WHO, 2013). Child poverty has the worst consequences by far: it damages life chances, health, shortens life expectancy and the quality of life, and it damages everyone in society (CPAG, 2017; NCD-RisC, 2017). Ending poverty is the first of seventeen sustainable development goals by the United Nations (UN, 2015). Almost inconceivable data on the wealth gap is the reason why child poverty rates continuously rise in the wealthiest countries, something that was once, not so long ago restricted to the poorest

countries of the world. After the introductory part, the second section provides definitions and cut-offs for nutritional status extremes while the third enlists risk factors, health burden and economic costs related to nutritional status extremes, specifically focusing on childhood obesity. The fourth and the fifth section provide global child poverty rates and define income inequality indicators and trends, respectively. Interrelations between income inequality, nutrition quality and childhood obesity are discussed in the sixth section. Based on analysed data, the seventh section encloses a set of policies and measures which intend to reduce child poverty rates and consequently decrease prevalence of all nutritional status extremes in children, especially obesity. Finally, in conclusion we emphasize that the reduction in poverty rates and extreme income inequality will improve nutrition and health indicators, in not only children, but the whole population. The aim of the paper is to describe detrimental effects of poverty on child's health and development, and to propose a set of various economic, fiscal, social, educational and health measures to prevent and reduce consequences of high child poverty rates. Methods used in the paper include the method of political economy, sociological method, historical method, analysis and synthesis method, systematic reviews and statistical method.

2. NUTRITIONAL STATUS EXTREMES – DEFINITIONS, CUT-OFFS AND RATES

Malnutrition is a collective name for four conditions related to the state of nourishment 1) underweight (i.e. low weight-for-age), 2) stunted growth (i.e. low height-for age), 3) wasting (or thinness, i.e. low weight-for-height), and 4) overweight/obesity (UNICEF/WHO/WB, 2016). These four conditions fall under one collective term, i.e. nutritional status extremes. Due to continuous increase in body weight and height, child's age and gender must be considered when determining their state of nourishment, and the three most commonly used tools include:

1. World Health Organization (WHO) percentile growth charts (de Onis et al., 2007),
2. Centers for Disease Control and Prevention (CDC) percentile growth charts (Kuczmarski et al., 2000), and
3. International Obesity Task Force (IOTF) BMI-based (Cole and Lobstein, 2012).

IOTF criteria is considered as the strictest and the easiest to apply because the basis are the standard cut-off values for adults (on the basis of the calculated Body Mass Index (BMI)), adjusted for age and gender. However, if percentile growth charts are used they should be prepared on a national level, because the ethnic specificities were found to significantly over- or under-estimate the rates of underweight and overweight/obese children. Having in mind the number of tools used, reported rates can vary greatly. Child's body goes through the second most intensive change during the life-course, right after infancy. Weight gain, height growth and relatively short time frame for these extreme changes make children especially susceptible. The last available data show that while the number of underweight children dropped from 198 million in 2000 to 156 million in 2015, the number of overweight and obese children under the age of 5 skyrocketed from 11 million in 2000 to striking 42 million in 2015 (UNICEF/WHO/WB, 2016). Rates vary significantly across different regions and are higher in urban areas but the highest burden is seen in Africa and Asia (de Onis et al. 2010). The worldwide prevalence of childhood overweight and obesity in children aged up to 5 years increased from 4.2% in 1990 to 6.7% in 2010, summing up to the total of 43 million children (35 million in developing countries), with additional 92 million at risk of overweight (de Onis et al. 2010). According to the global prevalence levels of childhood overweight and obesity (aged 5-17.9 years) for 2013 14.2% of children were overweight and 4.9% obese (Lobstein and Jackson-Leach, 2016). In the US 20% of children aged 3 to 17 are obese and in England 12% (OECD, 2017).

According to the data for 2015, 8.5% of boys and 8.7% of girls in primary schools, and 10.2% of boys and 10.6% of girls in high school were obese, based on Croatia's percentile growth charts). In Osijek in 2016, based on the IOTF criteria 5.4% of children aged 7 years are underweight (more girls), 11.0% are overweight and 4.6% obese (more boys in these two categories) (Banjari, 2016). The future is not bright. Estimates for 2025 predict that 15.8% of children will be overweight and additional 5.4% obese, and interestingly, for China, India and the US projected rates of childhood obesity are the highest (Lobstein and Jackson-Leach, 2016).

3. RISK FACTORS, CONSEQUENCES AND ECONOMIC BURDEN OF NUTRITIONAL STATUS EXTREMES

Simplified view on the risk factors related with underweight condition in children is food deprivation and on the opposite side is food excess. Inadequate nutrition certainly plays major role in the cascade. However, the overall picture is much more complex. Generally speaking, different genetic (parents), environmental (including dietary and lifestyle habits), *in utero* factors (foetal programming during pregnancy), and socioeconomic (SES) factors (income, education, employment status) correlate with child's state of nourishment (Banjari, 2016).

Confirmed obesity risk factors include the following: less than 30 minutes of daily physical activity, consumption of sugar-sweetened beverages and fast food, prolonged time of computer and TV viewing, long distance from green and recreational areas, mother's type 2 diabetes, macrosomia at birth, mother's smoking, absence of breastfeeding and short sleep time (Gurnani et al, 2015; Daniels et al., 2005; Kelsey et al., 2014; Dev et al., 2013; Vos and Welsh, 2010).

However, child poverty has the most severe consequences by far, because it instantaneously affects all previously mentioned risk factors, except genetics (Recently, studies are beginning to shed a new light on the detrimental impact of poverty and the transgenerational transfer of the health risks). Both conditions, i.e. underweight and overweight/obesity negatively affect the physical growth and psychological development of children (NCD-RisC, 2017). Underweight is related to lack of muscular strength, late maturation, higher susceptibility to infectious diseases, decreased bone density, and low work productivity later in life (NCD-RisC, 2017). Childhood obesity have profound effect on children's physical health, social, and emotional well-being, and self-esteem. It is also associated with poor academic performance and a lower quality of life experienced by the child. Medical consequences linked to childhood obesity include (but are not limited to) fatty liver disease, sleep apnoea, type 2 diabetes, asthma, hepatic steatosis (fatty liver disease), cardiovascular disease, high cholesterol, cholelithiasis (gallstones), glucose intolerance and insulin resistance, skin conditions, menstrual abnormalities, impaired balance, and orthopaedic problems (Sahoo et al., 2015). The »vicious« trio are diabetes, sleep apnoea, and cardiovascular disease, the three most common conditions in childhood obesity (NCD-RisC, 2017). As they age, overweight/obese children tend to end-up in a never-ending spiral of obesity-linked complications that shape demographic and health picture of the world. Besides excess health care expenditure, obesity also imposes costs in the form of lost productivity and foregone economic growth because of lost workdays, lower productivity at work, mortality and permanent disability (Tremmel et al., 2017). Economic cost of obesity globally now accounts for 5-7% of all health expenditures, and the projections for 2030 say that these will rise up to 16-18%. In other words, medical expenses are 42% higher for an obese person in comparison to non-obese person of same age and gender (Banjari, 2017). In 2014 the global economic impact of obesity was estimated to be US $2.0 trillion or 2.8% of the world gross domestic product (WGDP), with the total per-capita costs, using a Markov-based microsimulation, were predicted to be US $33,900 and US $70,200 over a time frame of 5 and 10 years, respectively (Tremmel et al., 2017).

4. CHILD POVERTY RATES

About 20% of children under the age of 18 live on less than $1.90 per day in low- and middle-income countries, or about 385 million children worldwide. Across OECD countries, the average prevalence of child poverty is 13.5%, but with significant differences across countries. In the United States, about 20% of children live in poverty, while in Denmark or Finland the rate of childhood poverty is only 3-4% (OECD, 2017). In countries affected with the Great Recession, one out of three children was affected with poverty (Roser et al., 2017). For example, in Italy the child poverty rate in 2014 was 3.7 percentage points higher than in 2004, and in Greece the rate was 6.5 percentage points higher (OECD, 2017). Today, in the United Kingdom, 30% of children live in poverty (CPAG, 2017). Households with children and only one adult, the average poverty rate is almost three times higher – at 64.2% – when the household is jobless than when the single adult is in paid employment (23.2%). The same applies in households with two or more adults, so the poverty rates in jobless two-or-more-adult-plus-children households (59.4%) are about three times as high as those in one-earner two-or-more-adult-plus-children households (20.7%), and about fourteen times as high as those in two-earner two-or-more-adult-plus-children households (4.2%). These rates vary significantly across the OECD countries, but no matter the indicator observed, China and India are leading this shame worth list of countries with the highest child poverty rates (OECD, 2017). Additionally, working poor, regardless of the definition used represent an additional at-risk group in terms of child poverty (Gautié and Ponthieux, 2017). According to the European Union data, households with children are at higher risk of in-work poverty; 28.0% of households with 2 adults and 1 to 2 children, or 56.0% of households with children in comparison to 43.3% of households without children (Eurofound, 2017, pg. 9). In 2014, according to the U.S. Bureau of Labor Statistics the working poor comprised 6.3 percent of all individuals in the labour force (BLS, 2016). The projections for 2025, based on the analysis of 184 countries gave alarming numbers for obesity-related comorbidities. It can be expected that 12.7 million children will be suffering obesity-related impaired glucose tolerance; about 4 million will be diagnosed with Type 2 diabetes, along with 27 million experiencing hypertension and nearly 38 million with hepatic steatosis. Again, the same three countries lead the way, China, the US and India (Lobstein and Jackson-Leach, 2016). It needs to be emphasized that in both developed and low-developed countries poverty related problems become pathologies of the society when income inequality gap increases (Judt, 2011; pp. 24).

5. INCOME INEQUALITY – TRENDS AND INDICATORS

By mid 1970s income inequality decreased in many countries, both capitalistic western and socialistic countries (Megapromjena, 2015, pp. 202). The underlying reasons include political-ideological reasons, widespread access to education, mass production and other technological advantages that have created the demand for medium expertise manufacturing jobs, progressive taxation, as well as the growth of trade unions and other institutions that regulate markets and strengthen the position of workers (Megapromjena, 2015, pp. 203). However, at the beginning of the 1970s the global downward trend in income gap within countries has changed the course. The reverse trend turned out to be comprehensive. At first, it started in wealthy countries, and the most extreme was in Anglo-Saxon countries, especially in the US. Gini's coefficient of inequality for the US increased from 0.31 in the mid 1970s to today's 0.38. This widening in the wealth gap is partly the consequence of income drop among the poorer, those below the middle class, and partially due to increase that the richest have in the share of the total country revenue (GDP). Including capital profits, the share of the richest 1% in national income tripled since the 1970s, when it was 8% to 24% in 2007 (Megapromjena, 2015, pp. 203-204). Partially, the same happened in Europe where governments are more egalitaristic. For example, inequality increased moderately in Germany and Sweden, also as a consequence of rising

revenue at the top. Among the developing economies, China and Russia have experienced the greatest income gap, but inequalities have also deepened in India and parts of Africa. The only developing region resisting the trend is Latin America (Megapromjena, 2015, pp. 204). In 2015 China's per capita GDP growth was 6.4% and India's 6.3% based on World Bank data which are the fastest growth rates for any major economies. They also propel the most rapid rates of growth of household and total consumption. Their growth is far greater than the Western economies — in 2015 the EU's *per capita* was only 1.7% and 1.6% in the US, and data of 2016 show continuation of the same growth rate (Ross, 2016). Importantly, China and India have the worst predictions for childhood obesity rates and obesity-related comorbidities (Lobstein and Jackson-Leach, 2016).

6. POVERTY AND INCOME INEQUALITY, NUTRITION AND NUTRITIONAL STATUS EXTREMES

Socioeconomic disparities and higher rates of obesity, Type II diabetes, and coronary heart disease are well documented (Monsivais et al., 2012; Drewnowski, 2009), but the same goes the other way around. People who develop a health problem, such as obesity as a consequence have a higher risk of poverty and experience fall in the income. According to Grow et al. (2010) child obesity risk significantly correlates with lower household income, lower home ownership, lower maternal education, single parent households, and a non-white race. When compared to children from middle- or high-SES, children from low-SES are more prone to extremes in the sense of their nutritional status, from undernourishment to obesity, along with the disturbances in all other health-related indicators (Evans, 2004; Drewnowski, 2009). Obesity damages labour market outcomes that, in turn, contribute to reinforcing existing social inequalities. Obese people have poorer job prospects compared to normal-weight people, they are less likely to be employed and have more difficulty re-entering the labour market. Obese people are less productive at work due to more sick days and fewer worked hours, and they earn about 10% less than non-obese people. Negative effects are even higher in case of obese women, especially of non-white race. Addressing obesity and the associated negative labour market outcomes would help break the vicious circle of social and health inequalities (OECD, 2017). Food is the essence of life. A well-balanced diet is a prerequisite for a healthy life. All extremes in nutritional status of children are related to inadequate intake of nutrients, i.e. unbalanced diet. According to the Food and Drug Administration "healthy foods" are defined as foods based on the protein, fibre, vitamins A and C, calcium, and iron content (Drewnowski, 2010b). However, not everyone has the same access to "healthy foods", which is the violation of the fundamental human right, the right to food. On an individual and community level SES disparities create barriers in diet quality. In other words, population groups with low-SES have limited access to highly nutritious foods. Poverty has been associated with greater distances to supermarkets and other food outlets that offer nutritious foods (Monsivais et al., 2012). Low-income neighbourhoods attract more fast-food outlets and convenience stores as opposed to full-service supermarkets and grocery stores (Drewnowski, 2009), popularly called the food deserts. By contrast, more affluent areas generally have access to better restaurants, fresher produce, and more opportunities for physical activity (Drewnowski, 2009). Nutrient-rich foods and high-quality diets cost more and are consumed by more affluent groups (Drewnowski, 2009). The relative prices of healthy foods, especially vegetables and fruit, have increased to a greater extent over time than prices for refined grains, added sugars and fats (Monsivais et al., 2012; Drewnowski, 2009; Drewnowski, 2003). Therefore, the lack of money for food purchase represents an insurmountable barrier, so that the quantity becomes more important than the quality of the food. Out of all nutrients, children are especially sensitive to insufficient dietary intake of iron because it directly affects normal growth and development, reduces productivity and affects academic success (Cairo et al., 2006; Lozoff and Georgieff, 2006; Hulthén, 2003;

Grantham-McGregor and Ani, 2001). For optimal growth and development, children require a well-balanced diet (Zimmermann and Hurrell, 2007) that goes hand-in-hand with iron-rich foods. Still, the overall dietary intake of iron is not sufficient per se, and requires an optimal absorption, which, in order to achieve maximum beneficial effects requires diverse diet. Iron-rich foods and those that will enable maximal utilization of iron (i.e. meat, fish and fruits) fall into a group of foods with the highest price per serving (Drewnowski, 2010a). In the time of economic insecurity, and fall in SES these foods are the first ones being cut from a diet (Drewnowski, 2004). However, some low-cost dietary sources of iron, like grains, dry beans, and eggs can be used as substitutes (Drewnowski, 2010b), but their utilization is very limited (Hallberg and Hultén, 2000; Banjari et al., 2013). Overweight/obese children, despite their excessive dietary and caloric intake have unbalanced diet based on carbohydrates and fats (Pinhas-Hamiel et al., 2003), and are even more susceptible and prone to various micronutrient deficiencies (Nead et al., 2004;Turer et al., 2013; Pinhas-Hamiel et al., 2003; Hutchinson, 2016). Both obesity and iron deficiency are more prevalent in population groups with low-SES, who consume low-cost foods that generally have low content of essential nutrients (Pinhas-Hamiel et al., 2003; Grow et al, 2010; Monsivais et al., 2012), consequently worsening their already fragile health.

7. PROPOSED MEASURES TO HELP MANAGE CHILD POVERTY AND CHILDHOOD OBESITY CRISIS

Child poverty and obesity rates are extremely complex and need a comprehensive approach, based on a consensus, consistent and continuous. The approach must be based on a set of public policies and measures, all aiming to prevent causes and control obesity-related consequences. Below we list a number of policies that need to be established in order to achieve the UN's sustainable development goals (UN, 2015) – reduce poverty and improve health.

1. agricultural policy measures – subsidies to nutritionally high-quality food producers and distributors of high quality and nutritious food, defining quotes of locally/regionally produced foods that need to be represented in national grocery stores, etc.
2. monetary policy measures – more favourable loans for producers and distributors of nutritionally high-quality food
3. tax policy measures – special taxation for producers and retailers who produce and sell nutritionally low-quality food; subsidizing consumers through reduced VAT on healthy food (e.g. reduce VAT from 25 to 5%); progressive income taxation to increase budget revenues to be used to fight obesity
4. income policy measures – raise the minimum wage level to reduce poverty and inequality and raise purchasing power for the poorest consumers
5. health policy measures – supporting research of obesity risk factors on national levels, enable early (primary) intervention by health workers at all levels of the healthcare system; enable public health professionals and general practitioners to "prescribe" highly nutritious food
6. public health education – education of all population groups, regardless of their age or gender about the detrimental consequences of obesity on health, familiarizing public with the concept "there is no healthy obese", emphasize the importance of adequate nutrition and the need for regular physical activity, setting up healthy cooking classes, healthy weight loss groups and similar
7. social policy measures – improve the access to high quality food to the poorest groups or individuals, link the work of social services and charitable organizations in collecting and distributing highly nutritious food to the poorest

8. educational measures – a curriculum devoted to adopt healthier life choices, from diet to physical activity, implement measures to enable physical activity in educational institutions, at work and in public spaces
9. demographic policies – enable working mothers to spend more time with children, promote and ensure conditions for breastfeeding at work, support family physical activities
10. cultural policy measures – public campaigns aiming to change public's attitude towards unhealthy diet (as achieved through anti-smoking campaigns); generally increase the number of public campaigns oriented towards healthier lifestyle and diet
11. measures of urban planning – plan more green areas in urban areas, as well as areas specifically designed for recreation and physical activity of population, plan more areas for "urban gardening"
12. regulatory measures – setting nutritional standards in food production, ban junk food marketing oriented towards kids, ban vending machines in educational institutions and hospitals, introduce mandatory food labelling which will enable easy classification of a certain food into a "healthy" or "not-so-healthy" group by the lowest educated consumer, increase public campaigns oriented towards healthier lifestyle and diet, etc.

8. CONCLUSION

The analysis support significant correlation between poverty, income inequality and nutritional status extremes, especially childhood obesity rates. On an individual level, obesity induces many developmental, psychological and physiological disorders that have life-long negative effect on an individual's life. On a societal level, obesity leads to slower economic growth, higher subsidies for public health, lower working productivity, causes difficulties during the education, increases the risk of poverty and social exclusion, and lowers the quality of life. Just as obesity increases the risk for poverty, the opposite is also true – poverty increases the risk for obesity but also amplifies all above-mentioned negative effects of obesity. In order to prevent and reduce these negative effects, a number of measures based on fiscal and monetary policy, income policy, educational and public health policy have been proposed.

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OCCUPATIONAL STRESS AMONG ACADEMICS: RELATIONSHIPS WITH PSYCHOSOCAL RISK AND SUBJECTIVE HEALTH ASSESSMENT

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ABSTRACT

The sector of higher education in Poland continues to experience significant changes and subsequent major changes are proposed and discussed. Many studies from different countries indicate that modern-day universities are stressful work environments. For many academics, universities have ceased to be a stable place of employment. Similar circumstances and processes are observed at Polish universities, e.g.: increasing pressure to obtain external funding, publication pressure or substantial growth in students number. Occupational stress can be defined in terms of interaction between the employee and their work environment; stress is experienced when the work demands surpass their abilities. The study is focused on diagnosis of occupational stress measured by Perceived Stress at Work (PSaW) scale (Chirkowska-Smolak & Grobelny, 2016) and examining the extent to which the perception of selected work-related hazards modifies the experience of occupational stress. The survey was conducted in 2017 on a random sample of employees of various universities in the country (N=340). The respondents noted more psychosocial threats related to the content of their work than to its context. However, it was the context that correlated stronger with the perceived stress than the content of their work. The variable differentiating the perception of occupational stress was the academics' subjective opinion on their health, whereas such factors as gender, work experience and academic degree did not have any impact on the levels of stress experienced by the respondents.

Keywords*: perceived occupational stress, psychosocial risk, subjective health assessment*

1. INTRODUCTION

Academic work has traditionally been regarded as non-stressful, but recent evidence suggests that this is no longer the case. Historically, universities used to be based on a community of scholars who shared traditional academic values. This is nowadays being replaced by a community of professionals (AUT, 2001). In Poland, for a few years now, just as for about thirty years in developed countries, meaningful changes in financing scientific research and University education have occurred. The level of guaranteed state subsidies is decreasing which forces the academics to apply for financial means from a limited pool to be won in highly competitive grant procedures. Additionally, in the last 20 years Poland has been experiencing an educational boom which has turned university education into a mass product and which has induced numerous consequences for the academics especially with respect to increasing their teaching workload. All this, combined with subsequent reforms of the academic and science sector, has led to changing academic values, professional roles as well as social interactions. This also evokes the need to permanently adapt to external requirements so that to fulfill the expectations of the academic supervisors as well as external stakeholders. The changes which take place in the area of higher education result partly from the contemporary economic, social and technological trends which have substantially changed the work environment.

The changes affect, among others, the nature of work and the manner of providing work, and thus certain psychosocial occupational threats appear. These include the lack of job security, increased intensity of work (too many tasks, time pressure), high emotional demands at work or difficulty keeping the work-life balance (Brun & Milczarek, 2007). The increased pressure and diminishing social support that may be seen in the academic circles of the developed countries results in intensification of work-related stress which was confirmed by research into this subject (e.g. Bowen et al., 2016; Catano et al., 2010; Winefield et al., 2008). The aims of this paper include defining psychosocial risks perceived by research scientists and teaching academics in their environment, determining the scope in which the perception of psychosocial risks modifies the level of perceived occupational stress as well as the verifying the connection between the academics' subjective evaluation of their health and the stress level they perceive.

2. THEORETICAL ASSUMPTIONS

2.1. Stress and the notion of psychosocial work-related hazards

Generally, a threat is understood as any phenomenon, situation and factor which may potentially cause substantial harm to a person (Cox, Griffiths, & Leka, 2005). Within the criterion of nature of expected harm, threats may be divided into:

1. physical – which directly affect an individual and generates physical harm,
2. psychosocial – which act indirectly, via the experienced psychological stress and affect psychological and social wellbeing of the individual, which may also result in psychosomatic and physical harm.

In knowledge-based economy, the nature of work as well as its environment and conditions have changed substantially. The contemporary model of work is, to a large extend, based on mental activity, it calls for intensive interpersonal relations and for functioning in a culturally differentiated environment. Thus, amongst numerous work-related hazards, psychosocial risks constitute an important group. International Labour Organization (ILO, 1986) suggested a conceptualization of psychosocial risks as a notion expressing a specific and potentially risky interaction between the content of work, the manner of its organization and management and other environmental and organizational conditions as well as competences and needs of those who provide work. Cox and Griffiths (2005) propose to define psychosocial risks as 'those aspects of the design and management of work, and its social and/ or organizational contexts that have the potential for causing psychological or physical harm'. The literature of the subject most frequently suggests that psychosocial threats could be described with respect to the following set of categories which characterize work environment in two areas:

1. the context of work: organizational culture and function, the role within the organization, career development, decision latitude / control, interpersonal relationships at work, home-work interface,
2. the content of work: work environment and work equipment, task design, workload / workplace, work schedule (Cox, Griffiths, Rial-Gonzalez, 2000).

It needs to be noted that potential harm resulting from psychosocial risks is triggered by work-related stress and that it is often accompanied by workplace violence. These two phenomena are currently perceived as the most important challenge to operational health and safety (Brun & Milczarek, 2007). The negative consequences of work-related stress are of individual and organizational nature. Amongst the negative consequences of this type of stress one may point to its connection with the employees' state of health. Some possible occupational health dysfunctions caused by stress are heart disease, depression and musculoskeletal disorders (MSDs). Other risk factors include high job demands, the feeling of having no control and effort-reward imbalance (e.g. Kivimäki et al., 2006; Melchior et al., 2007; Rosengren et al.,

2004; Stansfeld & Candy, 2006). On the organizational level, there is absenteeism, reduced availability for work involving high turnover, impaired work performance and productivity, an increase in client complaints (Cox, Griffiths, Rial-Gonzalez, 2000). A question must be posed at this point: in what circumstances does stress appear? According to the transactional concept of stress proposed by Lazarus and Folkman (1984), stress is the result of perceiving and attaching importance to the relationship between an individual and the environment, i.e. it is *de facto* the relation between the individual and its surroundings which is perceived as one that burdens or even surpasses that individual's resources and poses a threat to their wellbeing. The appraisal of this relation by the individual is determined by its system of values, aims, stances and previous experiences. Thus, the so called primary appraisal leads to perceiving the transaction either as a neutral one, with no importance to the individual, or as a meaningful one that may be perceived and may cause harm/ loss, pose a threat or challenge. When the transaction is perceived as a meaningful one, a secondary appraisal takes place in which the individual estimates their own abilities to cope with the situation in the context of their own resources which might be seen as adequate or inadequate to cope with the difficult situation. It seems that the transactional understanding of stress (Lazarus & Folkman, 1984) offers the widest perspective for pondering about stress and allows for analyzing psychosocial threats at work, both in the contexts of stress experienced by the individual (resulting from secondary appraisal) as well as apart from the stress experienced, solely as one of the qualities of any work environment, which bears no meaning for this individual (in the process of primary appraisal this threat is perceived as a neutral situation). In line with this approach, the mere presence of threats in work environment does not trigger the stress process as it is the individual's appraisal of particular situation that is key. On the other hand, however, it is paramount that psychosocial risks are identified in view of the fact that even a meaningless factor (neutral) might change as a result of circumstances or altered perception of the individual. Then it may be seen as a stressful factor since the interactions between the employee and their work environment are of a dynamic nature.

2.2. The specifics of academic environment in the context of psychosocial risks

The specifics of academic work is traditionally defined in three areas of operation: research work, teaching and organization. Thus, professional roles are strictly connected with these areas, i.e. the role of a research scientist, academic teacher and an initiator, organizer and popularizer of scientific and academic work. System transformations with respect to defining the university missions and the changes in financing higher education have changed the conditions of scientific research and teaching work. They have also modified the scope and nature of the tasks the academics are expected to perform. Attention is drawn to the expansion of the catalogue of expected roles to be played by academics. These include: 'teacher, scholar, practitioner, demonstrator, writer, model, discoverer, inventor, investigator, designer, architect, explorer, expert, learner, developer, collaborator, transformer, facilitator, enabler, evaluator, critic, assessor, setter, guide, colleague, supervisor, mentor, listener, advisor, coach, counsellor, negotiator, mediator, juggler, manager, leader, entrepreneur' (Gordon, 1997, pp. 67-68). The above roles can be grouped according to six major functions, i.e.: teaching and student support, research, community service, professional service, leadership, management and consultancy and developmental project work. The extension of the functions and roles played by the academics is often accompanied by imbalance in fulfillment of their tasks. In the reality of Polish universities this is primarily reflected by decreasing research activity in favor of teaching and organizational and administrative duties (Kowzan et al., 2016), which results in relatively low research efficiency of Polish academics compared to those from other European countries (Kwiek, 2015). In Polish economic conditions, low salaries of this group of employees constitute another factor that increases the imbalance between involvement in their research

work and other types of professional activity. Teaching overtime is general practice as is working for commercial projects and teaching at other universities (Kowzan et al., 2016). This causes frustration resulting from limited possibilities of carrying out an individual's own research activity which the academic perceive as their priority (Schmidt, 2017). Devoting more time to extra-scientific activities translates into improving the chances of promotion and job security, yet it increases internal and external pressure on improving the academics' research efficiency and working towards higher academic degrees and titles. Therefore academics frequently believe that they do not have enough time for their research work and at the same time they feel they must eventually find this time. They have to fight for it and somehow take it away from the time they devote to their students, their administrative work, their families or themselves (Kowzan et al., 2016, p. 27). It is a common practice that academics spend substantial part of their summer holiday time to catch up with their research work, to write papers and publications or prepare projects within various grants (Kowzan et al., 2016). It must be stressed that developing their own academic careers and gaining prestige and economic profits that come with it, as well as increasing their job security is only possible by way of academic promotion expressed by subsequent academic degrees of a Ph.D., habilitation and professorship (all of which constitute subsequent academic degrees in Poland). According to the academics, teaching is the least appreciated type of activity. They do not receive adequate support to facilitate teaching tasks or any feedback that this type of work is relevant and appreciated by their university (Schmidt, 2017). Thus, attention must be drawn to psychosocial risks related to the profession of an academic teacher whose work involves cooperating with dozens of students and their cognitive and emotional involvement in the circumstances of constant social exposure is very demanding. Academic teachers manage the group work, set goals, organize and coordinate their work, support and evaluate. At the same time, academic teachers must recognize their students' individual needs and stimulate their development. All this makes their work absorbing, stressful and enforces continuous work on broadening their own competence. Concerning the theoretical analyses presented in Chapter Two, and with respect to transformation of the context of academic work, the following hypotheses have been put forward: (H1): the subjects shall perceive more psychosocial risks resulting from the context of work than from its content, (H2): a higher number of work-related hazards (work content, work context, occurrence of pathology) will positively correlate with perceived stress, (H3): the perceived stress at work will correlate most with the number of context-related hazards, (H4): the subjective appraisal of an individual's state of health will positively correlate with the perceived stress at work, (H5): the perceived stress at work will be stronger in the group that undergoes the strongest pressure, i.e. in the group of Ph.D. holders (doctors).

3. METHOD

The research involved 340 research and teaching staff from various universities in Poland. The percentage of women prevailed (59%), whereas the average age of the participants was 42 years. The distribution of academic degrees among the participants was as follows: 16.76% magisters (Master degree holders), 52.65% doctors (Ph.D. degree), 22.94% habilitated doctors, 7.65% professors. The research was quantitative and was carried out in 2017 by means of several questionnaires[1]. For the sake of verification three types of tools were used. The Psychosocial Risk Scale (PRS) (Mościcka-Teske & Potocka, 2014) was used for measuring psychosocial threats.

[1] The presented research was part of a bigger project called 'Stress, job burnout and chronic fatigue as a negative effect of overloading academics with work – diagnosis and counteracting' carried out by A. Springer and financed from the means for fundamental statute operation of the Faculty of Finances and Banking of WSB Universities in Poznań.

The tool consists of three scales diagnosing such elements of work environment as (1) work content, which contains 14 items describing e.g. work environment and equipment, task design, workload and work schedule; (2) work context, which contains 28 items referring to organizational culture and function, role in organization, career development, decision 'latitude' and interpersonal relationships at work; (3) pathologies, which includes 8 questions concerning aggression, mobbing and discrimination. The Cronbach's alfa coefficient for the above scales was 0.825, 0.926 and 0.795 respectively, whereas in the test the coefficient was 0.918, 0.986 and 0.984 respectively. The tool allows for obtaining two independent factors: the number of risk factors present in work environment (by informing if a given factor is or is not present) as well as the degree of stressfulness of particular factors. In the analyses presented in this paper, only the former factor was considered as it makes it possible to pinpoint which psychosocial threats are present in work environment. The Perceived Stress at Work (PSaW) was used to evaluate work-related stress (Chirkowska-Smolak & Grobelny, 2016) based on Perceived Stress Scale (PSS) by Cohen, Kamarck and Mermelstein (1983). The scale contains 10 questions regarding subjective feelings related to situation at work within the last month. In the discussed research, the Cronbach's alfa for PSaW was 0.855 (i.e. it was comparable to the research carried out by Polish authors whose tools showed the Cronbach's alfa between 0.84 and 0.87 depending on the research). In order to measure the subjective appraisal of the state of health, a four-point scale was used. The subjects could evaluate their health as "very good – I practically do not fall ill", "good – I sporadically fall ill", "poor – I am ill quite often" and very bad – I have health problems which make my daily activities difficult". Due to a negligible number of the latter, in the analysis the two last categories of poor and very bad health were treated as one.

4. RESULTS

To start with, it was decided whether there actually were any hazards in the work place. The indicator of hazard is calculated based on the respondent's opinion whether they see any hazards in their work environment or not. At this point, the evaluation of the degree of stressfulness is not accounted for. The indicator might have the value ranging from 0 and 1. This value conveys the information on how many of the threats listed in the questionnaire actually occur in each respondent's workplace. In the group of academics dealing with both research work and teaching, the indicator of hazard posed by the work content was 0.64, its context 0.41 and its pathology 0.1. It needs to be noticed that among the respondents there were certain differences in the numbers of hazards posed by content and context of work (a detailed description of these differences is shown in Table 1).

Table following on the next page

Differentiating variable	Area of differentiation statistically significant	Group which notice more than one hazard	The level of relevance of differences
gender	work content	women	0.007
gength of employment	work context	academics who have worked from 6 to 30 years	0.000
academic degree	no relevant differences	-	-
state of health	work content	respondents perceiving their health as poor-making them difficult to function on a daily basis	0.006
	work context		0.009
teaching workload	work context	respondents teaching more than 250 hours per one academic year	0.008
average hours worked for the University per week	work content	respondents working for the University over 40 hours per week	0.000
	work context		0.000

Table 1: Variables differentiating the number of perceived hazards with respect to content and context of work (own study)

When analyzing the occurrence of psychosocial risk, one may need to look not only at the results on the analyzed scales but also determine which of the evaluated factors occur most frequently in a given work environment. Out of over 50 analyzed factors, top ten include 8 factors related to work content and 2 – to its context. Among the most often mentioned risk factors were: the necessity to focus one's attention for a long time, using modern technologies, the need to continuously improve one's qualifications, the system of evaluation, availability for work, multitasking, the need to react quickly, the obligation to observe procedures, having too many responsibilities and limited possibilities of promotion. Thus, H1 must be rejected as it assumed that the respondents perceive more hazards resulting from the context than the content of work. However, it must be remembered that the mere fact of perceiving a given factor in one's work environment does not necessary mean that this factor is the source of stress for that individual. In the research, besides the evaluations of hazards, the level of stress experienced at work was evaluated. The average stress level was 17.99 (SD=7.5) which is higher that the stress of employees in various branches measured with the same tool in other studies. M=15.7, SD=6.96 (Chirkowska-Smolak & Grobelny, 2016). The analysis carried out by means of tests of relevance of differences between the averages shows that most of the analyzed segmentation variables did not differentiate the level of perceived stress (these included: gender, length of employment, academic degree and the number of teaching hours). Thus, H5 was not confirmed either as, according to it, the occupational stress perceived was to be the strongest in the group of doctors. Only the subjective state of health and the number of working hours substantially differentiated the results on the analyzed scale. It is noteworthy that with respect to the subjective state of health, the worse it was, as seen by the respondent, the more perceivable their they work-related stress was. This result seems to be the best evidence to confirm the H4. The average stress level was 16.2 for those who perceived their health as very good, 18.4 for those who perceived it as good and as much as 21.8 for those respondents who perceived their health as poor. The fact that the segmentation variables differentiate the perceived stress levels to a very small degree leads to the situation that the analysis of interdependencies between stress perceived and psychosocial risks in work environment gains in importance. The interdependence between the occurrence of a given category of risks and the stress level proved

to be statistically relevant for all the scales under examination. It was particularly high for factors concerning the context of work – thus H2 and H3 need to be accepted.

	hazard: work content	**hazard: work context**	**hazard: pathology**
Pearson correlation	.391**	.604**	.383**
relevance (bilateral)	0.000	0.000	0.000
N	337	337	337

Table 2: Correlation coefficients between the perceived stress level (PSaW) and psychosocial hazards (own study)

From the viewpoint of designing prophylactic actions the question of primary importance is not so much proving the connection between a group of factors and the perceived stress but identification to what extend each of these factors contributes to the level of perceived stress. Thus, a comparison was made as to whether or not there was a relevant difference in the levels of perceived stress among academics who did notice a given risk factor in their environment and those who did not see that. The analysis accounted for 10 factors which had been determined as most frequently occurring at work (Tab. 3, Tab. 4). Due to the fact that on that list were only two factors pertaining to work context, additional five factors were added (Tab. 3, marked with an asterisk*). The additional factors were selected so that they represented typical work context categories (e.g. Cox, Griffiths, Rial-Gonzalez, 2000): the culture of the organization (item 3, Tab. 3), career development (item 4. Tab. 3), the scope of control (item 5. Tab. 3), interpersonal relationships (item 6. Tab. 3) and work-home relations (item 7. Tab. 3).

	PSaW, risk factor is not perceived	**PSaW, risk factor is perceived**	**relevance of differences**
1. I have too many responsibilities at work.	13.9	18.8	0.000
2. Promotion opportunities are very limited in my workplace.	14.7	20.2	0.000
3. I often have to cope with obstacles which make it difficult for me to meet the deadlines.*	14.0	20.6	0.000
4. There is a threat of redundancies in my workplace.*	15.3	20.2	0.000
5. In my company, employees have limited access to decision making with regard to its operations.*	14.8	20.0	0.000
6. In my company there are problems with getting support from the supervisors.*	15.4	21.8	0.000
7. My work adversely affects my private life.*	13.4	21.4	0.000

*Table 3: Levels of stress perceived depending on the perception of risk factors concerning work context (own study). *risk factors not included in the list of 10 most frequently perceived factors.*

Table following on the next page

	PSaW, risk factor is not perceived	PSaW, risk factor is perceived	relevance of differences
1. I must use modern technologies in my work.	17.0	18.1	0.587
2. In my work I am expected to think on my feet most of the time.	16.1	18.7	0.004
3. My work calls for focusing attention for long periods of time.	13.4	18.2	0.018
4. In my work I need to strictly observe procedures.	16.2	18.8	0.002
5. In my work I need to switch from one activity to another, and each of them calls for focusing my attention.	14.4	18.9	0.000
6. In my work there is a system of evaluation of employees.	18.0	18.0	0.993
7. In my work I must continuously improve my qualifications.	14.8	19.9	0.000
8. I am required to be fully available for work.	15.8	18.6	0.008

Table 4: Levels of perceived stress depending on the perception of particular risk factors concerning work content (own study)

Identification of risk factors is significant, because there is a strong correlation between the employee's appraisal of their health and the level of perceived stress. As was shown above, people who evaluate their health as poor, experience stronger stress. The obtained results confirm the research which shows dependence of various health issues on the level of work-related stress experienced (e.g. Kivimäki et al., 2006; Melchior et al., 2007; Rosengren et al., 2004; Stansfeld & Candy, 2006). More than half respondents (55%) described their health as good, every third one (34.7%) as very good, and every tenth one (10.3%) as poor and very bad. Notably, demographic variables (gender, age), organizational variables (length of work, academic degree) as well as objective workload (average number of working hours per week) did not have any influence of the subjective health evaluation as perceived by the respondents.

5. CONSLUSION

The work of academics is demanding which results from its content. It calls for intensive and time consuming focusing of attention, continuous development and increasing their academic qualifications. In this type of environment, the respondents see more hazards resulting from their work content than from the context. However, if all these most frequently perceived hazards are juxtaposed with the perceived professional stress, then in some cases, the psychosocial threat does not translate into perceived stress (e.g. the requirement to undergo evaluation might be accompanied with positive values like appreciation or promotion). This is coherent with the transactional concept of stress (Lazarus & Folkman, 1984), as it is the individual that gives meaning to the elements of the environment. The respondents see fewer threats related to work context, yet the correlation of psychosocial hazards with work-related stress is definitely stronger (r=0.604). This suggests that work context is more burdensome to academics than its content. What is more, the same pertains to many aspects of work context since significant differences were observed with respect to all analyzed factors of work context. It needs to be stressed that the diagnosis of overall stress level amongst academics revealed a higher general stress indicator that was determined by research into stress level amongst other groups of employees (Chirkowska-Smolak & Grobelny, 2016). This result might point to the fact that, as it is in developed countries, (e.g. Catano et al., 2010; Winefield et al., 2008) the

increased pressure on the academics results in elevated indices of stress perceived by them. Additionally, and not surprisingly, the higher the overall stress level, the lower the subjective health appraisal is. One might assume that the increased indices of stress will induce new health problems since, as it was shown, occupational stress appears to precipitate e.g. diagnosable depression and anxiety in previously-healthy workers (Melchior et al., 2007). The assumptions that stress level depends on the degree of academic promotion have not been confirmed. This is interesting as the promotional structure of the research sample very well reflected the structure of the examined population. Doctors and Habilitated Doctors prevail in this group (in our research they comprised 75.59% of the respondents) which might suggest that the latter mostly experience similar pressure for promotion and publications as those holding the title of Ph.D. That would be close to the results of qualitative research (Kowzan et al., 2016) which points to the fact that the Polish academic community might be divided into two groups: one that experiences the pressure for promotion and publications and at the same time is heavily burdened with teaching and administrative duties (Doctors and Habilitated Doctors) and the other which is faced with much smaller pressure (Professors).

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THE PERFORMANCE DYNAMICS OF TRADE COMPANIES IN CENTRAL AND EASTERN EUROPE: AN ANALYSIS OF LOCAL VERSUS FOREIGN-OWNED BUSINESSES

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ABSTRACT

The paper focuses on the relevance of foreign capital versus local capital for the performance of wholesale and retail trade companies from Central and Eastern Europe, with the aim of understanding the dynamics of and differences in the performance of the two types of businesses. The current research and analysis are based on data available from inward FATS - Foreign Affiliates Statistics at the wholesale and retail sector levels. We find that in performance terms, the labour productivity of the wholesale sector was higher than the economy's in each of the CEE countries when the apparent labour productivity is considered, but lower in simple wage-adjusted productivity terms, which indicates that the average personnel costs in the wholesale sector are higher than the costs at economy-wide level. At the same time, both productivity indicators show smaller values for the retail sector compared to the economy in all countries, for both locally-owned and foreign-owned companies, and the profitability of the wholesale and retail sectors is smaller compared to the economy-wide profitability, regardless of the type of business ownership. Moreover, locally-owned businesses have been more dynamic compared to foreign-owned ones, as they attempted to recover quicker after the Global financial crisis; nevertheless, there is much that remain to be done by local businesses to reach the level of performance of foreign-owned companies in CEE markets, as the performance gap between them in productivity and profitability is still large.

Keywords: *Central and Eastern Europe, foreign direct investments, performance dynamics, trade industry, foreign ownership*

1. INTRODUCTION

The income level rise in Central and Eastern Europe (CEE) countries in the '90s, coupled with the free movement of people within the European Union, generated a higher consumer preference towards modern forms of trade, compared to the old and traditional shops and boutiques specific to communist times. The natural consequence was the active presence of modern trade businesses in the region, while the new manner of providing goods and services, more modern and efficient, and adapted to consumers' preferences, has induced changes in consumers' attitude towards purchasing. Indeed, White and Absher (2007) found that consumers and shoppers from CEE countries held very high expectations of what they desired in a retail store and even that these expectations were higher compared to the ones of the EU founder member states. The rapid spread of major wholesale and retail chains in CEE countries made some authors refer to a "retail revolution" in the region (Garb and Dybicz, 2006), centred on large western European retail chains, that had reached their growth limits and were faced with regulative barriers on their home markets, and that entered the CEE markets to foster further growth in a newly open terrain. The financial crisis in 2007-2009 altered the trading landscape in Central and Eastern Europe, as orders for distributors contracted dramatically, people reduced the expenses on food and shopping and gave a higher preference to shops located closer to home in order to reduce transportation costs, the number of insolvencies among distributors increased and sales dropped. Simultaneously, discounters continued their aggressive expansion in the region, but accompanied by adjustments in their strategies. As a result, at the end of 2014, EU enterprises involved in distributive trade (Section G of NACE

Rev.2) generated a turnover of 9,925 billion euros in the EU-28 countries, which represented the largest turnover among all NACE sections in the non-financial business economy (in percentages, distributive trade turnover held 37.3% of all the non-financial economy turnover). Moreover, the distributive trade sector employed 24.1% of the persons in the non-financial EU-28 economy, or 32.7 million persons, while in value added terms the sector was the second sector as importance, after the manufacturing sector, generating 1,243 billion euros at the end of 2014. At the same time, the competitiveness of the distributive trade sector was lower compared to the other sector of the non-financial EU-28 economy, as reflected by labour productivity – i.e., the apparent labour productivity was 38,000 euros per person employed in the distributive trade sector, compared to 49,500 euros for the non-financial economy average; the wage-adjusted labour productivity was 136% for the distributive trade sector at end 2004, also lower than the 145.6% average productivity for the non-financial EU economy – or profitability – as such, the distributive trade sector recorded the lowest gross operating rate (the ratio between the gross operating surplus and turnover) of all the non-financial economy sectors in EU. The high level of turnover and the increased competition in the sector are by far the main explaining factor for the lower profitability, while the lower productivity is mainly due to the high percentage of part-time persons employed in the distributive trade (see, in this respect, Distributive trade statistics – NACE Rev.2[1]). The companies' performance, eventually reflected in industry or sector performance, and, most important, its causes, was in the forefront of academic literature for a rather long time, since the works of Bain and Mason on industrial organization in the 40s-50s of the previous century (Tirole, 1988; Porter, 1983). According to the theory of industrial organization, the industry environment plays a central role in explaining companies' performance and, on its turn, is built on three components – structure, conduct and performance. In this framework, "structure" refers to specific industry features such as its level of diversification, technological endowment and competition, "conduct" refers to the company's strategy, and "performance" is revealed by the profitability level of the industry or sector (Porter, 1981). Still, companies' performance seems to be also explained by the type of ownership, i.e. foreign or domestic. From this perspective, Weche Gelubcke (2011) finds that foreign-owned companies in Germany tend to be employ a higher number of persons, pay higher salaries, but have lover levels of profitability compared to domestic ones. Moreover, there are insignificant differences between the foreign- and the domestic-owned companies integrated at international level in terms of labour productivity. These result make the author conclude that foreign ownership is less important as a source of better performance compared to the advantages brought by company integration in a multinational network. The same author also finds in a study on German services sector that labour productivity did not significantly differ between domestically owned affiliates of multinational companies with a high degree of internationalization and foreign-owned companies on the German market (Weche Gelubcke, 2013). Griffith et al. (2004) examine the role of multinationals in service sectors in United Kingdom and find that British multinational companies have lower levels of labour productivity and investment compared to foreign multinationals operating in UK, but the difference is less accentuated in the services sector than in the manufacturing sector. Rather interesting, Greenaway et al. (2012) investigate the link between the degree of foreign ownership and the performance of recipient Chinese companies and find that joint-ventures tend to record better performance compared to wholly foreign-owned and purely domestic businesses; this makes the authors conclude that some degree of domestic ownership is required, at least in the Chinese environment, in order to generate optimal company performance. Overall, the existing literature on the impact of foreign ownership on company performance is less convincing than expected from the perspective of a clear superior performance for foreign-owned companies compared

[1] http://ec.europa.eu/eurostat/statistics-explained/index.php/Distributive_trade_statistics_-_NACE_Rev._2

to locally-owned ones. Moreover, there is a lack of research on the significance of foreign ownership for corporate performance in the services sector in Central and Eastern Europe, let alone in the trade sector. The current paper attempts to offer some insight in this area of research and is structured as follows: Section 2 presents an overview of wholesale and retail trade sector in CEE countries, Section 3 analyses the dynamics of this sector after the Global financial crisis of 2007-2009 and Section 4 concludes.

2. WHOLESALE AND RETAIL TRADE IN CEE COUNTRIES – AN OVERVIEW

The analysis presented in this paper focuses on the overall performance of wholesale and retail trade in CEE countries after the Global financial crisis of 2007-2009, as well as on the differences in performance between foreign-owned and locally-owned companies in the region. Data used in the research covers the 2009-2014 period and was collected from the Eurostat FATS - Foreign Affiliates Statistics database (part of Structural business statistics). A number of seven CEE economies were investigated – Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovenia and Slovakia -, all EU members and former communist countries. The industry attributes used in the research were collected for two components of the distributive trade NACE Revision 2 subdivision G; specifically, G46 – "Wholesale trade, except of motor vehicles and motorcycles" and G47 – "Retail trade, except of motor vehicles and motorcycles". These industry attributes are the following: (1) Number of enterprises (NOENT); (2) Turnover or gross premiums written (TURN); (3) Production value (PRODVAL); (4) Value added at factor cost (VA); (5) Personnel costs (PERSCOST); (6) Gross investment in tangible goods (GROSSINV); (7) Number of persons employed (PERSEM)[2]. Besides these direct industry attributes, a number of three derived indicators that show sector performance have been collected, as follows: (1) Apparent labour productivity (ALP) - defined as the "value added at factor costs divided by the number of persons employed"; (2) Simple wage-adjusted labour productivity (SWALP) – defined as the "value added divided by personnel costs which is subsequently adjusted by the share of paid employees in the total number of persons employed, or more simply, apparent labour productivity divided by average personnel costs (expressed as a ratio in percentage terms)"; and (3) Gross operating rate (GOR) – defined as the "ratio of gross operating surplus to turnover"[3]. The values for each indicator were collected for foreign-owned companies, as well as for locally-owned companies; in the case of foreign-owned companies, the share of foreign capital represents at least 50% of the affiliate's capital, which ensures a significant degree of control of the foreign entity. Figures 1 and 2 show the distribution of wholesale and retail trade across CEE countries included in our analysis, based on three indicators - number of enterprises, turnover and number of persons employed – and divided between foreign-owned and locally-owned businesses, respectively. One may easily notice that both sectors are unevenly distributed among the seven countries from CEE, regardless of the indicator and type of ownership (foreign or local). For the wholesale sector, Romania, Hungary and Czech Rep. hold the largest shares in terms of number of enterprises (31%, 22% and 17%, respectively, for foreign-owned businesses, and 20%, 12% and 31%, respectively, for locally-owned businesses), but Poland dominates in terms of turnover, generated both by foreign and locally-owned companies (31% and 38%, respectively), and number of persons employed (31% for foreign-owned companies and 28% for locally-owned businesses).

[2] The definitions are found in the Structural Business Statistics and Foreign controlled EU enterprises – inward FATS statistics provided by Eurostat (http://ec.europa.eu/eurostat/statistics-explained/index.php/Category:Structural_business_statistics_glossary)

[3] According to inward FATS statistics provided by Eurostat (http://ec.europa.eu/eurostat/statistics-explained/index.php/Category:Structural_business_statistics_glossary)

Czech Republic holds the second place regarding turnover – 22% for foreign-owned companies and 21% for locally-owned companies -, and Romania regarding the number of persons employed – 22% for foreign-owned companies and 21% for locally-owned companies.

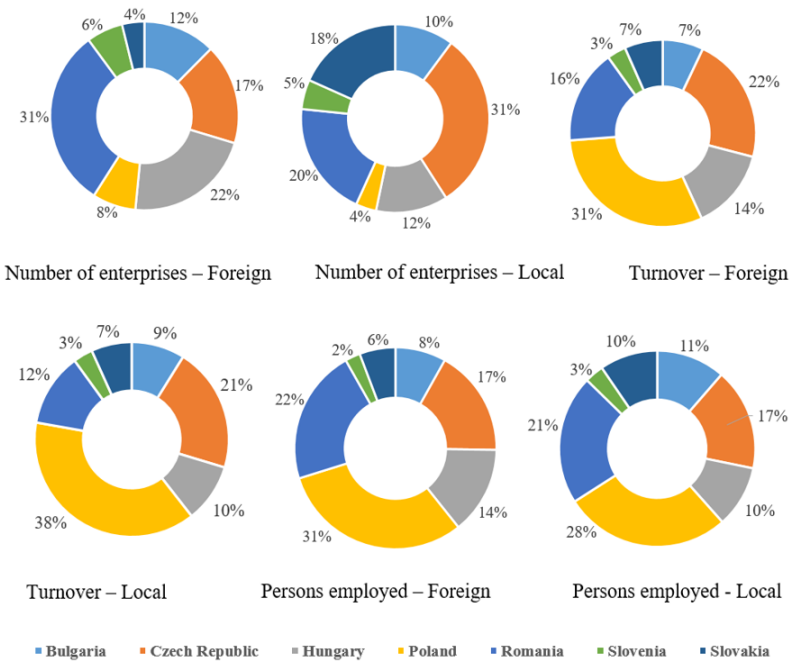

Figure 1: Wholesale trade distribution across CEE countries (Eurostat data)

The retail sector mimics to a large extent the pattern of wholesale distribution across CEE countries for the three indicators considered – number of enterprises, turnover and number of persons employed. As such, Hungary, Romania and Czech Republic hold the largest share at CEE level in terms of number of enterprises owned by foreigners (28%, 27% and 19%, respectively), but the ranking is slightly changed when domestic-owned businesses are considered – Czech Republic holds the largest share (27%), followed by Romania (22%) and Bulgaria (21%). Poland, by far, dominates the retail sector in CEE from the turnover perspective, either generated by foreign-owned or locally-owned businesses (shares of 36% and 31%, respectively), as well as from the number of persons employed – Poland holds a 39% share at CEE level in terms of persons employed by foreign-owned businesses and a 28% share for persons employed by locally-owned businesses. The other countries with important shares in turnover are the Czech Republic (20% for foreign-owned companies and 17% for locally-owned companies) and Romania (16% for foreign-owned companies and 15% for locally-owned companies). The same two countries second Poland in the ranking of the number of persons employed; the Czech Republic retail sector employs the second highest number of persons in CEE in foreign-owned retail (19% share), followed by Romania, with a share of 16%, but the wo countries change places in locally-owned retail, where the Romania comes after Poland with a share of 21% and Czech Republic is in the third place with a share of 17%.

Figure following on the next page

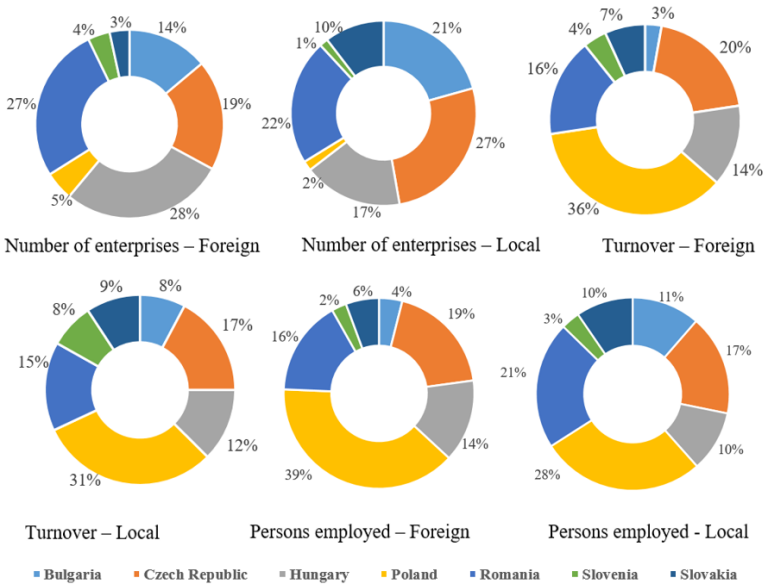

Figure 2: Retail trade distribution across CEE countries (Eurostat data)

Table 1 shows the importance of foreign ownership in wholesale and retail sectors in the seven economies under investigation when all industry attributes are taken into account, in terms of the ratio between industry indicators for foreign-owned and locally-owned businesses. Wholesale is largely dominated by locally-owned businesses, as the ratio values are below one for all indicators, with the noticeable exception of Hungary, where foreign-owned companies generate a higher production value, more value added and higher gross operating surplus compared to locally-owned companies; at the same time, they also incur higher personnel costs. The retail sector landscape is to a high extent similar to the wholesale sector, but some differences are visible; the most striking is observable for gross investment, where the foreign-owned companies generate higher values compared to locally-owned ones in four countries out of seven (Poland, Hungary, Romania and Czech Republic).

Table1: The importance of foreign ownership in wholesale and retail trade as 2009-2014 averages (Authors' calculations based on Eurostat data)

Wholesale trade								
	NOENT	**TURN**	**PRODVAL**	**VA**	**GOS**	**PERSCOST**	**GROSSINV**	**PERSEM**
EU 27/28	0.0367	0.5410	na	0.5094	na	na	na	0.2449
Bulgaria	0.0924	0.4286	0.4506	0.3882	0.3321	0.4911	0.3296	0.1950
Czech Republic	0.0424	0.5687	0.5962	0.5960	0.5472	0.6396	0.3185	0.2775
Hungary	0.1335	0.7757	1.0708	1.1821	1.2029	1.1764	0.5191	0.3744
Poland	0.1601	0.4293	0.6744	0.5979	0.5658	0.6408	0.3853	0.3063
Romania	0.1177	0.7180	0.7103	0.6582	0.5612	0.8288	0.4028	0.2765
Slovenia	0.0934	0.5403	0.4537	0.4309	0.4216	0.4367	0.2582	0.2102
Slovakia	0.0158	0.5285	0.4161	0.3333	0.2766	0.3916	0.2374	0.1644
Retail trade								
	NOENT	**TURN**	**PRODVAL**	**VA**	**GOS**	**PERSCOST**	**GROSSINV**	**PERSEM**
EU 27/28	na	0.2098	na	0.2138	na	na	na	0.1559
Bulgaria	0.0085	0.2793	0.3030	0.1838	0.0880	0.2386	0.5487	0.0785
Czech Republic	0.0090	0.8869	0.9490	0.8784	0.7355	0.9931	1.1676	0.4251
Hungary	0.0206	0.8571	0.9336	0.7235	0.7013	0.7329	1.2565	0.3289
Poland	0.0369	0.9140	0.9400	0.9302	1.1845	0.7549	1.5610	0.6027
Romania	0.0155	0.8477	0.6882	0.6151	0.7153	0.5529	1.1791	0.2341
Slovenia	0.0321	0.4019	0.4580	0.4319	0.4696	0.4116	0.9107	0.3446
Slovakia	0.0041	0.5694	0.4325	0.4058	0.3778	0.4370	0.5936	0.2305

Note: na – not available

At the same time, foreign-owned companies hold, on average, a higher share in the CEE countries' retail turnover, production value, value added and personnel costs compared to

wholesale turnover, which indicates that foreign ownership is more present in the retail sector, while the wholesale sector tends to see a higher importance of locally-owned businesses. When we contrast the CEE figures against the EU 27/28 ones (whenever available), we observe in the wholesale sector that foreign ownership is more important in terms of number of enterprises is six out of seven countries, in terms of turnover in five out of seven countries, in terms of value added in four out of seven countries and in terms of number of persons employed in four out of seven countries. For the retail sector, the importance of foreign ownership is higher in CEE compared to EU 27/28 in all countries for turnover, in six out of seven countries for value added and in six out of seven countries for the number of persons employed. This points out towards a higher involvement of foreign-owned companies in the CEE countries' retail sector compared to the EU 27/28 retail, but to a large extent, CEE is the ground field for major European retailers since the '90s; this suggests that CEE retail is well integrated in the EU retail.

3. WHOLESALE AND RETAIL SECTORS DYNAMICS AFTER 2009

We explore the dynamics of the wholesale and retail sectors dynamics in CEE countries by contrasting the performance of foreign-owned versus locally-owned businesses from three perspectives; first, we examine the year-on-year average growth rates of the direct and derived indicators of performance between 2009 and 2014, then we proceed at a comparison between the derived performance indicators – productivity and profitability – for the wholesale and retail sectors, on one hand, and the economy-wide level, on the other hand. Also, we observe the evolution of productivity and profitability between 2009 and 2014 across the CEE economies.
Table 2 presents the annual average growth rates between 2009 and 2014 of the eight direct indicators and three derived indicators for each CEE country, as well as the same figures at the EU level, for the wholesale sector and divided between the indicators for locally-owned and foreign-owned businesses. The positive growth rates encountered in the overwhelming majority of countries and indicators show that the wholesale sector has grown between 2009 and 2014, but there are differences to be noticed across countries, indicators and type of business ownership (foreign versus local).

Table 2: Wholesale trade - growth rates of industry indicators as 2009-2014 averages (Authors' calculations based on Eurostat data)

Locally-owned companies											
	NOENT	**TURN**	**PRODVAL**	**VA**	**GOS**	**PERSCOST**	**GROSSINV**	**PERSEM**	**ALP**	**SWALP**	**GOR**
EU 27/28	0.0098	0.0449	na	0.0238	na	na	na	-0.0010	na	na	na
Bulgaria	0.0094	0.0550	0.0518	0.0707	0.0719	0.0636	0.0105	-0.0228	0.0929	0.0163	0.0203
Czech Republic	0.0913	0.0421	0.0604	0.0406	0.0974	0.0102	0.0365	0.0443	0.0006	0.0224	0.0497
Hungary	-0.0034	0.0236	0.0225	0.0304	0.0427	0.0079	0.1069	0.0034	0.0199	0.0235	0.0189
Poland	0.0150	0.0599	0.0426	0.0200	0.0108	0.0246	0.0224	-0.0206	0.0395	-0.0198	-0.0476
Romania	-0.0196	0.0227	0.0799	0.0370	0.0336	0.0263	-0.0222	-0.0220	0.0544	-0.0008	0.0110
Slovenia	0.0015	-0.0099	-0.0232	-0.0059	0.0234	-0.0400	-0.1427	-0.0412	0.0245	0.0116	0.0282
Slovakia	0.6198	0.1264	0.0921	0.0824	0.4059	0.0056	0.1089	0.0860	0.0344	0.0873	0.1895
CEE average	0.1020	0.0457	0.0466	0.0393	0.0979	0.0140	0.0172	0.0039	0.0380	0.0201	0.0386
Foreign-owned companies											
	NOENT	**TURN**	**PRODVAL**	**VA**	**GOS**	**PERSCOST**	**GROSSINV**	**PERSEM**	**ALP**	**SWALP**	**GOR**
EU 27/28	0.0269	0.0511	na	0.0146	na	na	na	0.0154	na	na	na
Bulgaria	0.0013	0.0580	0.0434	0.0678	0.1250	0.0382	0.0837	-0.0212	0.1015	0.0057	0.0776
Czech Republic	-0.0496	0.0289	0.0233	0.0458	0.0363	0.0307	-0.0716	-0.0055	0.0382	0.0363	0.0010
Hungary	0.0013	0.0186	0.0267	0.0237	0.0748	0.0065	0.1062	-0.0118	0.0505	0.0166	0.0528
Poland	0.0361	0.0457	0.0357	0.0163	-0.0028	0.0651	0.0062	0.0015	0.0239	-0.0085	-0.0468
Romania	0.3529	0.0534	0.0807	0.0292	0.0489	0.0598	-0.0505	0.0209	0.0595	0.0059	-0.0032
Slovenia	0.1741	0.0437	0.0230	-0.0202	0.0539	0.0345	-0.0101	0.0321	0.0012	0.0207	0.0016
Slovakia	-0.0259	0.0342	-0.0173	0.1288	0.0638	0.0001	0.0208	-0.0477	0.0771	0.1156	0.0327
CEE average	0.0700	0.0404	0.0308	0.0417	0.0571	0.0336	0.0121	-0.0045	0.0503	0.0275	0.0165

When we compare the CEE average growth rates between locally-owned and foreign-owned businesses, we see that locally-owned companies have been more dynamic than foreign-owned ones in terms of number of enterprises, turnover, production value and gross investments, as well as in terms of profitability measured by GOR. At the same time, foreign-owned companies recorded higher positive average annual rates of growth for value added, personnel costs and

labour productivity; moreover, the number of persons employed by foreign-owned companies declined on average at CEE level by 0.45% between 2009 and 2014. In Slovenia, almost all indicators (with the exception of NOENT, GOS, ALP, SWALP and GOR) declined, on average, after 2009, for locally-owned companies, while foreign-owned companies have only seen their value added and gross investment decline during the same time span. An interesting observation, based on data from Table 2, is that CEE wholesale trade has grown faster that EU wholesale trade between 2009 and 2014, as annual average growth rates either for locally-owned or foreign-owned businesses are higher compared to the similar figures for EU 27/28; but this should not come as a surprise, due to the search of turnover, market share and profitability by major wholesalers in less explored markets after the deterioration of performance during the financial crisis. The examination of growth rates for the retail sector, shown in Table 3, suggests that, on average, at CEE level, foreign-owned businesses performed better than locally-owned businesses when one considers the direct indicators, except for the gross operating surplus – but in this latter case, the negative growth rate value at CEE level for foreign-owned businesses is due entirely to the underperformance of these businesses on the Bulgarian market, where the GOS declined by more than 3 times on average between 2009 and 2014.

Table 3: Retail trade - growth rates of industry indicators as 2009-2014 averages (Authors' calculations based on Eurostat data)

Locally-owned companies											
Country	**NOENT**	**TURN**	**PRODVAL**	**VA**	**GOS**	**PERSCOST**	**GROSSINV**	**PERSEM**	**ALP**	**SWALP**	**GOR**
EU 27/28	0.0037	0.0145	na	0.0103	na	na	na	0.0039	na	na	na
Bulgaria	-0.0131	0.0496	0.0363	0.0431	0.0306	0.0575	-0.0972	-0.0155	0.1196	-0.0140	-0.0220
Czech Republic	-0.0048	-0.0049	0.0109	-0.0045	0.0049	-0.0115	-0.0179	-0.0122	0.0182	0.0063	0.0085
Hungary	-0.0198	0.0244	0.0257	0.0380	0.1555	0.0096	0.0672	-0.0044	0.0843	0.0285	0.1228
Poland	0.0251	0.0425	0.0349	0.0214	0.0021	0.0354	-0.0338	-0.0052	0.0096	-0.0137	-0.0345
Romania	-0.0298	0.0507	0.0363	0.0510	0.0805	0.0355	-0.0161	-0.0179	0.0358	0.0151	0.0286
Slovenia	0.0198	-0.0147	-0.0550	-0.0666	-0.0698	-0.0622	-0.0894	-0.0666	-0.0041	-0.0094	-0.0667
Slovakia	1.0181	0.2270	0.2432	0.2845	1.2475	0.0715	-0.0238	0.1996	0.0286	0.1490	0.4041
CEE average	0.1422	0.0535	0.0474	0.0524	0.2073	0.0194	-0.0301	0.0111	0.0417	0.0231	0.0630
Foreign-owned companies											
	NOENT	**TURN**	**PRODVAL**	**VA**	**GOS**	**PERSCOST**	**GROSSINV**	**PERSEM**	**ALP**	**SWALP**	**GOR**
EU 27/28	na	0.0564	na	0.0869	na	na	na	0.0425	na	na	na
Bulgaria	-0.1045	0.0412	0.0737	0.1608	-3.2864	0.1071	-0.0564	0.0532	-0.0129	0.0655	-3.1654
Czech Republic	-0.1722	0.0202	0.0208	0.0301	0.0433	0.0240	-0.0561	0.0112	0.0052	0.0061	0.0248
Hungary	0.0021	0.0123	0.0366	0.0744	0.4477	0.0045	-0.1028	-0.0077	0.0460	0.0733	0.4359
Poland	0.0226	0.0971	0.0865	0.0612	0.0361	0.0902	0.0021	0.0512	-0.0175	-0.0269	-0.0536
Romania	0.5962	0.0891	0.0688	0.0648	0.0758	0.0601	0.0171	0.0300	0.0110	0.0039	-0.0061
Slovenia	0.2174	0.1556	0.1524	0.2075	0.1982	0.2172	0.2371	0.2144	-0.0064	-0.0124	0.0193
Slovakia	-0.0053	0.0897	0.0751	0.0811	0.0975	0.0995	-0.0698	0.0658	0.0750	-0.0010	0.0292
CEE average	0.0795	0.0722	0.0734	0.0971	-0.3411	0.0861	-0.0041	0.0597	0.0144	0.0155	-0.3880

On the other hand, locally-owned businesses recorded higher average growth rates than foreign-owned companies in terms of labour productivity – for both ALP and SWALP – and profitability – actually, GOR declined on average by 38.8% for foreign owned companies (again, mainly as a result of the underperformance in Bulgaria), while it increased on average by 6.3% for locally-owned companies. When we look at individual countries' results, Slovakia is the only country where the average growth rates are positive for all indicators for locally-owned companies and Hungary for foreign-owned companies. Table 4 presents comparatively the performance of the wholesale and retail sectors measured by labour productivity and profitability as averages for the 2009-2014 interval, divided between foreign-owned and locally-owned companies, against the economy-wide similar performance. The productivity of the wholesale sector was higher than the economy's in each of the seven countries in our panel in ALP terms, but lower in SWALP terms – this means that the average personnel costs in the wholesale sector are higher than the costs at economy-wide level, which explains the difference between ALP and SWALP productivity measures. On the other hand, both productivity indicators generally show smaller values for the retail sector compared to the economy in all countries, for locally-owned and foreign-owned companies, with the exceptions of Slovenia

and Slovakia for SWALP in the case of foreign-owned companies and of Slovenia for the same indicator in the case of locally-owned companies. Moreover, the profitability of the wholesale and retail sectors, measured by GOR, is smaller compared to the economy-wide profitability, regardless of the type of business ownership; but this is an expected result, given the high competition in both these sectors that pushes profitability ratios down.

Table 4: Wholesale and retail sectors' performance indicators for locally versus foreign-owned companies as 2009-2014 averages (Authors' calculations based on Eurostat data)

Country	Economy-wide			Wholesale			Retail		
	ALP	SWALP	GOR	ALP	SWALP	GOR	ALP	SWALP	GOR
Foreign-owned companies									
Bulgaria	20.1000	232.5167	9.0500	23.5500	223.4833	3.6000	7.9500	122.6333	1.1333
Czech Republic	37.3500	198.7167	9.0667	45.3500	176.5167	3.6833	20.6500	159.4500	4.8500
Hungary	38.7667	220.7333	9.8917	48.7167	194.1500	5.6667	13.9500	128.9833	2.1250
Poland	36.0000	228.9833	11.7000	50.4167	219.6667	6.6667	20.4167	209.4167	7.6833
Romania	22.1667	222.6333	11.1333	28.3500	219.4333	4.8833	13.2500	179.8167	3.8500
Slovenia	39.7167	160.8167	6.6833	57.6500	159.9167	3.8333	30.7500	163.4000	4.9167
Slovakia	33.7667	189.1333	7.3333	39.4000	173.4000	3.4333	23.5833	197.5333	6.4500
Locally-owned companies									
Bulgaria	7.6000	199.9500	9.0333	11.8000	283.9167	4.6000	3.4000	157.2500	4.0833
Czech Republic	18.7167	195.8500	10.2500	21.1333	189.3000	3.8167	9.9667	180.1833	5.8833
Hungary	12.7333	172.7000	7.9667	15.4167	193.4333	3.7250	6.3333	130.3500	2.5750
Poland	23.5167	200.7000	11.4833	25.9000	233.9833	5.0833	13.2167	169.0500	5.8667
Romania	9.8167	206.6000	11.9667	11.8500	276.5333	6.2667	5.0833	161.8833	4.5333
Slovenia	27.8667	159.7500	8.8333	28.1667	162.3500	4.9167	24.2000	153.3833	4.1500
Slovakia	17.9833	206.8667	12.6833	19.1000	201.8500	6.4000	13.1333	207.6833	8.9667

The last perspective on wholesale and retail industry performance dynamics between 2009 and 2014 is shown in Figures 3 and 4; for each country and type of business ownership, Figures 3 and 4 present the values of ALP, SWALP and GOR in 2009 and in 2014.

Figure 3: Productivity and profitability dynamics between 2009 and 2014 for the wholesale sector in CEE

A look at Figure 3 allows us to observe that the wholesale sector performance, either in terms of productivity or profitability, increased between 2009 and 2014 in all CEE countries or at least remained at the same in 2014 compared to 2009; the exceptions are Poland for SWALP and GOR (both for foreign-owned and locally-owned businesses) and Slovenia for SWALP and

GOR only for foreign-owned businesses. The retail sector landscape, shown in Figure 4, presents some differences compared to the wholesale sector. As such, locally-owned businesses have increased their productivity measured by ALP in 2014 compared to 2009 in five out of seven countries in CEE (the exceptions are Slovenia and Slovakia), but the productivity measured by SWALP declined in three out of the seven CEE economies – Bulgaria, Poland and Slovenia. Meanwhile, foreign-owned companies have seen their productivity measured by ALP decline slightly only in Slovenia, but measured by SWALP in four countries – Bulgaria, Poland, Slovakia and Slovenia. In profitability terms, the retail sector performance for the locally-owned companies dropped in three countries (Bulgaria, Poland and Slovenia), while for the foreign-owned companies declined in Poland, Romania and Slovakia.

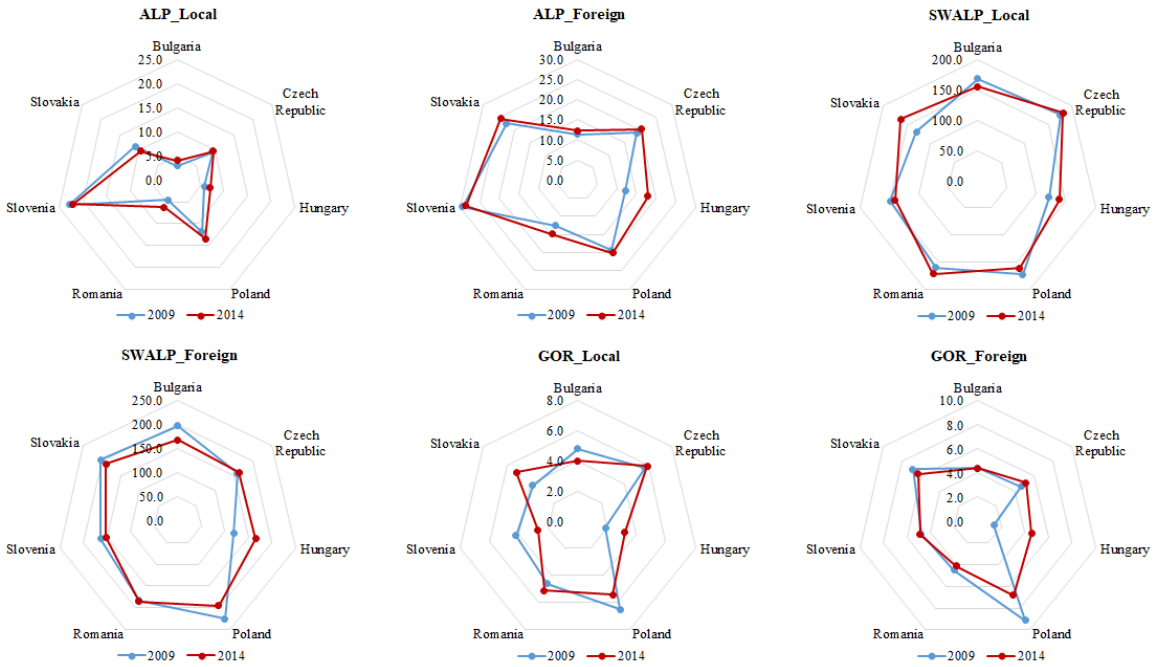

Figure 4: Productivity and profitability dynamics between 2009 and 2014 for the wholesale sector in CEE

4. CONCLUSION

Our research investigates the relevance of foreign ownership for the performance of wholesale and retail trade companies from Central and Eastern Europe, with the aim of understanding the dynamics of and differences in the performance of the foreign-owned versus locally-owned businesses from the region. The analysis is based on data available from inward FATS - Foreign Affiliates Statistics at sector level, published by Eurostat at sector level. The evolution of trade in CEE after 2009 shows that locally-owned companies have been more dynamic than foreign-owned ones in terms of number of enterprises, turnover, production value and gross investments, as well as in terms of profitability. At the same time, foreign-owned companies recorded higher positive average annual rates of growth for value added, personnel costs and labour productivity. In performance terms, the labour productivity of the wholesale sector was higher than the economy's in each of the CEE countries when the apparent labour productivity is considered, but lower in simple wage-adjusted productivity terms, which suggests that the average personnel costs in the wholesale sector are higher than the costs at economy-wide level. At the same time, both productivity indicators show smaller values for the retail sector compared to the economy in all countries, for both locally-owned and foreign-owned companies, and the profitability of the wholesale and retail sectors is smaller compared to the

economy-wide profitability, regardless of the type of business ownership; but this is an expected result, given the high competition in both these sectors that pushes profitability ratios down.
The last concluding remark is that the wholesale sector performance, in both labour productivity and profitability terms, increased between 2009 and 2014 in all CEE countries or at least remained at the same in 2014 compared to 2009; in the retail sector, foreign and locally-owned businesses have generally increased their productivity 2014 compared to 2009. In profitability terms, the retail sector performance for the locally-owned companies dropped in three countries, while for the foreign-owned companies declined in Poland, Romania and Slovakia. These results indicate that locally-owned businesses have been more dynamic compared to foreign-owned ones, as they attempted to recover quicker after the Global financial crisis; nevertheless, there is much that remain to be done by local businesses to reach the level of performance of foreign-owned companies in CEE markets, as the performance gap between them in productivity and profitability is still large.

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MONITORING THE INNOVATION ECOSYSTEM AND THE OF EFFECTIVENESS SMART SPECIALISATION STRATEGIES

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ABSTRACT

Smart specialisation policy aims at enhancing innovation and economic growth of the regions. The core mechanism for developing smart specialisation strategies is the entrepreneurial discovery process. The regions are to discover their innovation priorities in a bottom-up process involving all regional quadruple helix actors – university, industry, government and civil society and to focus their innovation efforts in the priority areas in order to be able to develop competitive advantage globally in these areas. While the concept of smart specialisation has been widely adopted in European regions since 2013, few studies have so far investigated the actual mechanisms to monitor smart specialisation implementation. This paper explores the mechanisms to monitor smart specialisation strategies and the innovation ecosystem development as the whole in Finnish regions. We adopt a grounded theory approach with multiple case design. Our semi-structured interviews with the facilitators of smart specialisation strategy process cover all 18 Finnish mainland regions. Based on 28 interviews conducted with altogether 36 facilitators in the subsequent interview rounds of 2016 and 2017, we can conclude that the regions have adopted a variety of monitoring tools that utilize both quantitative and qualitative data collection mechanisms. We describe three innovative tools - "Situational picture of innovation", "Partnership barometer" and "Connectivity tool" – that succeed to both drive policy learning and implementation. Our paper contributes to current debate on smart specialisation regarding how to engage the stakeholders to the monitoring process and how to identify the causality between policy measures and the overall regional innovation ecosystem development.

Keywords: *Monitoring, policy learning, regional innovation system, research and innovation strategies for smart specialisation, smart specialisation*

1. INTRODUCTION

Smart specialisation concept was introduced by the high-level expert group "Knowledge for Growth" within the European Commission (Foray et al., 2009), which became the major industrial and innovation policy within European Union in a short time period (Foray, 2014). The core idea is the regional specialisation that supports regions to develop competitive advantage globally in the areas where they have the strengths and competences. The prioritisation process involves a bottom-up collaborative effort involving all quadruple helix actors of the research. The overall objectives for monitoring smart specialisation strategies (S3) are to learning about actual transformation processes and informing policy actions accordingly, building and reinforcing trust and cooperation with and among stakeholders and citizens, guarantee accountability of policymaking (Gianelle and Kleibrink, 2015). The monitoring and evaluation forms the last step of the S3 process. While monitoring encompasses all activities that have to do with the collection and processing of information about the expected results and the degree of implementation of policy measures, the evaluation is to assess how and why policies, programmes and projects have actually had the desired effects (Gianelle and Kleibrink,

2015). Thus, monitoring complements the evaluation, and does not substitute it. According to the recent European wide survey, national and regional policymakers see the importance of stakeholder engagement in monitoring, but face difficulties in implementation (Kleibrink et al., 2016). Another challenge is to enable true causality between output and result indicators in S3 monitoring (Kleibrink et al., 2016). In other words, the dilemma is how to measure the impact of S3 alone apart from other innovation measures and actions that influence the overall development of regional innovation and economic growth. This concerns especially the regions where the funding from European structural and investment funds (ESIF) constitute only a small share of the total regional research and development funding, as in the case of Finnish regions. The aim of our paper is to explore how regions can overcome the challenges identified above and to develop such monitoring tools that both engage regional stakeholders and facilitate policy learning and policy implementation. Our paper investigates the mechanisms to monitor S3 based on a multiple case study in Finnish regions. Our semi-structured interviews with the facilitators of S3 process cover all 18 Finnish mainland regions. Based on 28 interviews conducted with altogether 36 facilitators in the subsequent interview rounds of 2016 and 2017, we can conclude that the key mechanisms for the regions to monitor S3 and the innovation ecosystem development are data collection from statistics and reports, stakeholder surveys and interviews as well as stakeholder discussions. We present three innovative tools to monitor S3 and the regional innovation ecosystem that truly engage a wide group of regional stakeholders and that facilitate policy learning and implementation. Our paper contributes to current debate on monitoring S3 through providing insight into how to engage the stakeholders to the monitoring process and how to develop causality between S3 measures and the overall regional development. This paper is organized as follows. We first present the logic of intervention in smart specialisation and discuss current key challenges in implementation. Then, we describe our research methods and data to investigate the monitoring mechanisms. Third, we highlight our key findings from Finnish regions. At the end, we conclude with the discussion on the contribution of our paper, its limitation and our suggestions for future research.

2. THE LOGIC OF INTERVENTION IN SMART SPECIALISATION

The major effort to advance the monitoring of smart specialisation was the development of the logic of intervention by Gianelle and Kleibrink (2015). This model integrates monitoring tightly with S3 process that starts with the identification of regional challenges and needs, then the formulation of vision and strategic objectives and at the end the selection of S3 and the regional priority areas and the policy mix to implement the strategy. The result indicators are used to monitor the progress within priority areas and the output indicators in turn to follow up the policy mix implementation (Gianelle and Kleibrink, 2015). While the result indicators track the overall regional development in terms of e.g. new patents or new firms in the priority area, the output indicators follow-up the funded projects in the priority area. The challenge is to be verify the causality between the result and output indicators. In a follow-up study, Kleibrink et al. (2016) investigated how policymakers understand the logic of intervention in the smart specialisation, and how this is reflected in the monitoring mechanisms based on the responses from policymakers in 68 regions and 12 countries across Europe. The study reveals that the monitoring mechanisms are not yet defined in most of the cases (59% of respondents) and in several cases defined, but not implemented (15% of respondents). This means that over 60% of the respondents are not yet monitoring the performance of their smart specialisation strategies. The respondents see as the main functions of monitoring to be informing political decision-makers and other stakeholders about progress made in S3 implementation. Currently the most used data sources for monitoring S3 implementation include official statistics, operational program indicators, Horizon 2020 project participation and European statistic, while only about half of the respondents conduct surveys and focus groups.

Prior research has urged governments to engage to learning-by-monitoring (Sabel, 1993) with a tight collaboration between the firms and the government, both being committed to continuous performance improvement. Thus, it would be advisable for more regions to engage with their stakeholders in the monitoring effort. Kleibrink et al. (2016) urge more research to understand how policy-makers can embed such engagement in the design and daily practice of monitoring. Finally, while the result-oriented logic of intervention was in general well understood and applied by policy-makers, only a minority of respondents established a clear link between output and result indicators (Kleibrink, 2016). In fact, despite the detailed illustration of the logic of intervention, there is neither conceptual work on smart specialisation nor the European regulation providing details of what should be monitored and how (Kleibrink et al., 2016). Our paper builds on the earlier studies regarding the overall logic of intervention (Gianelle and Kleibrink, 2015) and the European-wide survey on monitoring (Kleibrink et al., 2016), with a more qualitative grounded theory approach to investigate monitoring mechanisms in Finnish regions. Our paper aims to contribute to the current debate on S3 monitoring with new insight on the key mechanisms to engage stakeholders and monitor causality between result and output indicators.

3. RESEARCH METHODS AND DATA

We adopted a multiple case research design following the principles of grounded theory approach (Corbin and Strauss, 1990; Gioia et al., 2013) to explore the mechanisms through which the regions monitor the effectiveness of smart specialisation strategies. Having data from several regions allows us to develop more accurate and generalizable results, as we can extract and compare findings among regions. In addition, we use triangulation in order to enhance the validity of our findings (Yin, 2009). We use secondary research data from regional councils such as presentations and reports related to monitoring regional development and regional strategy. We gathered primary research data through semi-structured interviews with regional authorities in Finland responsible of smart specialization process. In total, we interviewed 36 persons working mainly in regional councils through 28 interviews. The interviews took place in two rounds – during September 2016 and August-October 2017. Our data covers all 18 Finnish mainland regions. The first round of interviews focused on the overall process of smart specialisation development and implementation, while the second round in more in-depth inquiry about the engagement of quadruple helix stakeholders in smart specialisation and the related challenges. The monitoring of smart specialisation strategies was part of both questionnaires. The interviews lasted approximately one hour each and were typically conducted by phone, except the face-to-face meetings with Helsinki-Uusimaa region that is our research location. Table 1 illustrates the list of interviews with information on the regions and organisations interviewed, the title of interviewees and the interview date.

Table following on the next page

Table1: Regional interviews

Region	**Organisation**	**Title of respondent and the date of interview**	
Central Finland	Regional Council of Central Finland	Development Manager	2016-09-28, 2017-08-29
Central Ostrobothnia	Regional Council of Central Ostrobothnia	Manager of International Affairs	2016-09-20, 2017-09-08
Helsinki-Uusimaa	Helsinki-Uusimaa Regional Council	Innovation Adviser	2016-09-20, 2017-08-24
Häme	Regional Council of Häme	Senior Adviser	2017-09-14
Kainuu	Regional Council of Kainuu	Regional Development Specialist	2017-09-11
Kymenlaakso	Cursor Oy, Kymenlaakso University of Applied Sciences	Project Manager, RDI Director and RDI Expert	2016-09-14
Lapland	Regional Council of Lapland	Project manager	2017-08-31
Ostrobothnia	Regional Council of Ostrobothnia	International Coordinator	2016-09-19, 2017-09-04
Oulu Region	Council of Oulu Region	Development Manager	2016-09-14, 2017-10-04
Tampere region	Council of Tampere Region	Senior Officer	2017-09-23
Pohjois-Karjala	Regional Council of Pohjois-Karjala	Regional Development Manager, Regional Development Advisor	2017-08-25
Pohjois-Savo	Regional Council of Pohjois-Savo	Manager, Regional Development	2017-09-22
Päijät-Häme	Regional Council of Päijät-Häme	Senior Advisor, International Affairs	2017-09-12
Satakunta	Regional Council of Satakunta	Regional Advisor	2016-09-26, 2017-11-10
South Carelia	Regional Council of South Carelia	Development Director, Manager, Regional Development	2017-09-18
South Savo	South Savo Regional Council	Manager, Regional Business Development and Innovation, Development Manager	2016-09-20, 2017-08-29
South Ostrobothnia	Regional Council of South Ostrobothnia	Manager of International Affairs, Director of International Affairs and Culture, Regional Development Planning Officer, Project Coordinator	2016-09-19, 2017-11-01
South Ostrobothnia	University of Tampere	Research Manager	2017-10-03
Southwest Finland	Regional Council of Southwest Finland	Senior Planning officer, Senior Planning officer	2016-09-14, 2017-09-06

We recorded all interviews, transcribed and analysed them in Atlas.ti. We first identified all activities related to the monitoring of smart specialisation strategies from our interview transcriptions and labelled them as 1st order terms. We then grouped similar mechanisms together and labelled them as 2nd order themes. Finally, we compared the different 2nd order themes with each other and divided them two categories of quantitative data collection and qualitative data collection. In addition, we provide examples from Finnish regions regarding three specific monitoring tools to describe how to implement different mechanisms in practice. Finally, we compare our findings to existing literature on the monitoring of smart specialisation strategies.

4. KEY FINDINGS

4.1. Regional innovation landscape in Finland

The Finnish research and innovation system has ranked highly in international comparisons. Finland has been characterised as Innovation Leader in EU Innovation Scoreboard, having position score 131% over EU average in 2016 (European Commission, 2017a). In the regional level, Helsinki-Uusimaa region and Southern Finland as a whole and Western Finland are characterised as Innovation Leader, while the Eastern and Northern part of Finland Strong Innovators (European Commission, 2017b). The governance of Finnish research and innovation system is centralised in terms of national guidelines, strategies and funding, but a mix of national and local administration gives regions a relatively high degree of autonomy in the design and implementation of regional policies (Halme et al., 2017). The focus of smart specialisation in Finland is on the knowledge base, lead markets initiatives and ecosystems development (Halme et al., 2017). Smart specialisation approach bares many similarities in terms of the process principles and contents to the programme-based regional development strategy work that started in Finland already in 1994. The regional development strategy work features a true bottom-up process engaging a large group of regional stakeholders representing quadruple helix actors in strategy workshops as well as open consultation through possibility to comment work-in-progress documents and to answer open innovation surveys implemented in many of the Finnish regions. The regional innovation platforms with active stakeholder collaboration have a long history in Finland. The focus in recent years had been to complement the traditional science-technology-innovation (STI) mode of innovation with doing-using-interacting (DUI) mode of innovation (Kautonen et al., 2016, Uotila et al., 2012).

4.2. Key mechanisms to monitor the innovation ecosystem and S3 implementation

In order to identify the key mechanisms for monitoring smart specialisation in the Finnish regions, we extracted all activities from our interviews related the monitoring and the evaluation of strategy implementation. Figure 1 illustrates our key findings. Regarding similar monitoring approaches such as monitoring project activity, the allocation of funding to RIS3 priorities etc. we only raised these approaches once as 1st order terms in Figure 1.

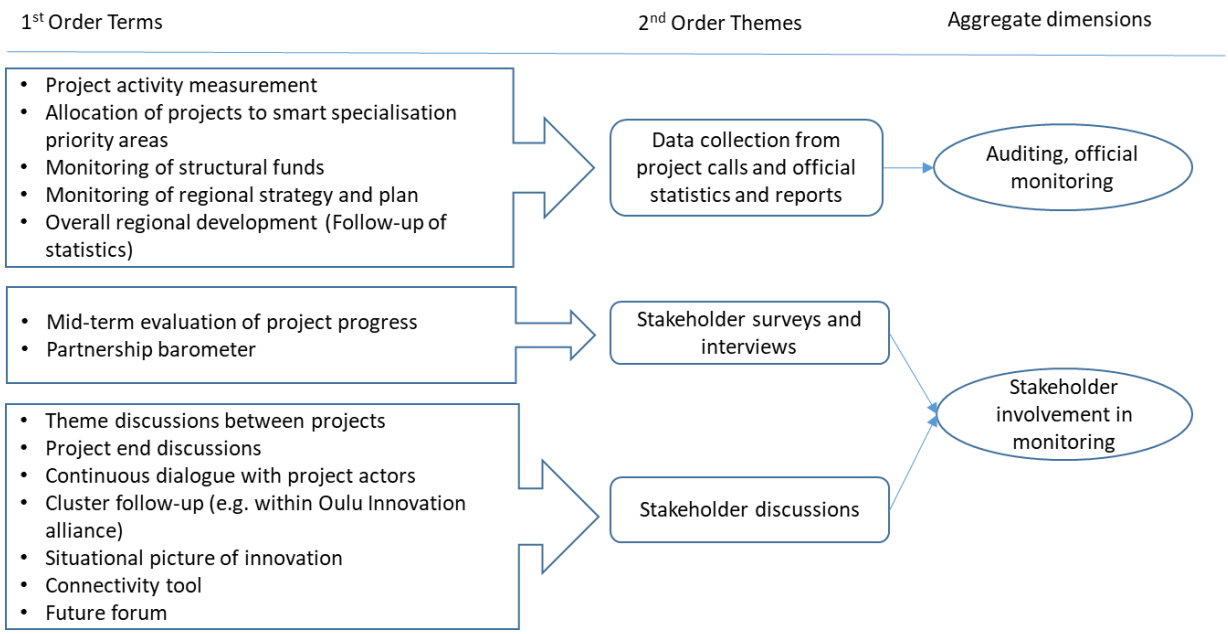

Figure 1: Key mechanisms to monitor S3 and regional innovation

As a result we can see that the key mechanism for monitoring smart specialisation strategy implementation are data collection from statistics and reports, stakeholder surveys and interviews as well as stakeholder discussions. Thus, the monitoring includes essentially both quantitative and qualitative assessment of the results. We found that the data collection is only the initial step in the process, which follows by joint reflection and interpretation of the results between stakeholders and finally the development of corrective actions. This is how the monitoring essentially contributes as a smart specialisation strategy development, which in Finland follows the regional development cycle of four years. In the next chapter, we describe three specific tools for monitoring regional development as examples of the innovative tools developed by Finnish regions.

4.3. Examples of regional monitoring tools

4.3.1. Situational picture of innovation

The Situational picture of innovation was launched in 2013 and since then has been implemented yearly by the Regional Council of Tampere. It forms part of the regional information management process and serves to support regional decision-making processes. It offers for all regional stakeholders a view of the state and the development of regional innovation environment. The government of the Situational picture of innovation is for a specific management group that consists of the regional higher education institutes, municipalities and development organisations. The management group outlines the process goals and at the end discusses the observations made from Situational picture and the related topical phenomena (Regional Council of Tampere, 2017c). The key feature of the Situational picture of innovation is that it integrates the quantitative data on key indicators with the qualitative analyses and observations from the regional stakeholders. The process starts with data collection regarding the funding of research, development and innovation (RDI), value network capability, growth companies, higher education institutes, internationality, digitalisation and innovation platforms. (Regional Council of Tampere, 2017b) This is followed by a series of workshops with stakeholders from companies, universities and research institutes and public sector to refine the material, make observations, interpretations and produce additional material based on the initial data collection. There were the following five workshops organized in 2017. The first workshop - Data crush event" - consisted of data experts from different organisations that examined the development of the Situational picture indicators with the aim to identify possible gaps in the assembled material. The second workshop - Interpretation workshop - involved the innovation and foresight team of the Council of Tampere region and contemplated the phenomena behind the development. The third workshop - Digital data - focused on discussing and mapping the indicators used for monitoring digitalisation. The fourth workshop - Bio- and circular economy - focused on examining the theme from the perspective of competitiveness. The fifth and the final workshop - Platform seminar - made observations related to the platform operations that came up in the Situational picture and discussed the aspects related to the measurement of the impact of open innovation platforms.(Regional Council of Tampere, 2017c) At the end, the Council of Tampere region organized a joint event for regional stakeholders for the presentation of the yearly results of the Situational picture of innovation work. It points out not only the strengths, but also the weaknesses and challenges in the development. The causality between S3 output indicators and the result indicators of the Situational picture of innovation is tackled mainly by tracking the evolvement of the result indicators over time. If the result indicators in S3 priority areas evolve favorable, while there has been continuously significant funding and effort in these areas, the conclusions is that the S3 efforts have been successful. In 2017 altogether 120 persons from different organizations was involved to develop the Situational picture of innovation (Regional Council of Tampere, 2017a).

Several regions in Finland have adopted similar type of the process and it was lifted as European best practice in InnoBridge project funded by Interreg Europe.

4.3.2. Partnership barometer

Partnership barometer was launched in 2014 in Southwest Finland as the key tool to follow-up the achievement of the goals presented in the regional strategy and vision. It also monitors the progress of the regional partnership forum. It is based on a survey sent to 700 key regional stakeholders in industry, university and public sector. Partnership barometer monitors both the generic regional development as well as the implementation of the key actions in the regional strategy. The respondents assess the statements regarding the generic regional development and the implementation stage of the key strategic actions. Thus, the survey monitors both result and output indicators and places stakeholders as a key source of information. All questions reflect the current stage as well as the expectations towards the future development. The partnership barometer is a way to evaluate the implementation of the regional strategy and can be used to both further strategy development and the refinement of the action plan to improve the implementation. Regarding the partnership forum – which is a key tool to enhance regional collaboration and innovation in Southwest Finland – 75% of the respondents in 2016 see it as an important tool to develop the region. More than 50% of the respondents assessed the meetings organized by the partnership forum contributed to the development of new ideas and collaborative networks for regional development. (Regional Council of Southwest Finland, 2017).

4.3.3. Connectivity tool

Connectivity tool launched in 2013 Ostrobothnia for strengthening the regional innovation ecosystem integrates the full policy development cycle. The process involves a survey to the regional triple helix stakeholders (businesses, universities/research institutes and public sector organisations) and interviews to identify their expectations and experiences of the collaboration towards other stakeholder group. Then gap analyses is conducted to compare the differences between the expectations and experiences of different stakeholder groups. For example, the relationships between businesses and public sector might differ in terms of employment issues, environmental regulation, spatial planning, technological development or business development (Virkkala et al., 2017). The Connectivity tools provides information about the bottlenecks between different collaboration aspects. The focus seminar is organised as a joint event at the end for different stakeholder groups to plan together actions how to improve the current bases of collaboration regarding the bottleneck areas. The smart specialisation projects are implemented to reduce the bottlenecks in the regional innovation ecosystem. The process is repeated every second year, which facilitates monitoring of the results achieved and to develop further measures to improve the regional ecosystem. The causality between the output and the result indicators is tight in the connectivity tool. If the implementation of actions is successful, this would be shown as lower gaps between the expectations and the experience of the regionals stakeholders regarding their collaboration. A detailed description of the connectivity tool is available in a recent work by Virkkala et al. (2017).

5. CONCLUSION

Prior research has highlighted two specific challenges related to the monitoring of smart specialisation strategies (Kleibrink et al., 2016). The first challenge is to engage stakeholders in the monitoring process, and thus to enhance trust and learning between regional stakeholders. The second challenge is to understand the causal links between the result and output indicators, in order to better allocate the policy measures to support favourable regional development.

As key results of our study, we identify multiple mechanisms to engage stakeholders in the S3 monitoring such as surveys, interviews, focus group meetings, seminars and workshops, which complement the monitoring through official statistics and S3 project activity. We briefly present three innovative tools used for monitoring S3 in Finnish regions from Tampere region, Southwest Finland and Ostrobothnia. These examples succeed to engage a large number of regional stakeholders, while the indicators used differ considerably between the regions. As Tampere region monitors the regional innovation landscape, its innovation efforts in S3 priority areas should be reflected in the Situational picture of innovation indicators over time. The region have utilized working groups in two of the priority areas – digitalisation as well as bio- and circular economy - to track the results in these priority areas in terms of competitiveness. Southwest Finland in turn monitors the achievement of regional strategic goals and the results of partnership forum through a stakeholder survey, putting the regional stakeholders in the centre in the monitoring of the progress. This is also key in the Ostrobothian model in which the causal relationship between the policy actions and the results is tight and monitored through regional stakeholder dialogue that takes place every two years. Our research contributes to existing debate on monitoring smart specialisation with the insight from Finnish regions. It reveals that stakeholder engagement is built in the monitoring system in general in Finland and that there are trade-offs in enabling causality. As an example, the Situational picture of innovation entails more challenges to identify true causality between S3 efforts and the results than the Connectivity tool due to its wider perspective, covering the regional innovation performance as the whole. The main limitation of our study results from its focus on only Finland. The monitoring system must always reflect the conditions for stakeholder collaboration in monitoring systems. As there is long tradition of regional collaboration between the different stakeholder groups, this makes it easier to involve stakeholders in the monitoring process than in the countries without such tradition. Our results have practical implications as policymakers can use them as a benchmark how to engage stakeholders and how to address the causality between result and output indicators. We recommend future studies to develop more in-depth analyses on the monitoring system within one region and address the establishment of the causality links between result and output indicators in a further detail. This type of research has potential to contribute to the development of better and leaner monitoring of smart specialisation strategies.

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ON THE CROSS-MARKET LINKAGES IN GLOBAL FINANCIAL MARKETS

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ABSTRACT

We study the interrelationships among stock markets of developing economies from a system theory approach. Previous research in financial economics suggests that stock markets are interconnected and information travels from one market to another to the extent of the level of linkages between two (or more) markets. Efficient market hypothesis proposes that markets operate with different forms of informational efficiency and the informational shock in one market is reflected as shock(s) in other market(s) to the extent of their interlinkages. The informational shock in a market might take some time to reach and reflect in other market(s) thereby providing market players in the other market(s) to exploit this information to gain some abnormal profits.Such arbitrage opportunities arise out of informational inefficiency and weak interlinkages among financial markets and violate the efficient market hypothesis theory. If financial markets are believed to be functioning as a system, they should respond in a more rational and efficient ways to any new information and the shocks originating because of such information. In this paper, we study the cross-market linkages in the context of stock markets of the developing economies in a system dynamic framework.Using ten year weekly data from April 2007 to March 2017 for twelve stock indices from across the world, we explore the cross-linkages among markets. The studycomprises of data on NYSE, NASDAQ, SSE Composite, HANGSENG, S&P500, NIKKEI 225,DJIA, EURONEXT, NIFTY and SENSEX. In this piece of work, we begin with examining the association of SENSEX with other world indices. We also consider USD/INR exchange rate and India Volatility Index as exogenous variables to capture the interaction effects.We show the time-varying comovements between the Indian and other major international stock markets. Our results from cointegration tests incorporate structural breaks and recursive association-based dynamic models suggest the implications of the time-varying relationships among major stock markets. Statistically significant coefficients of recursive error correction terms connote that the long-term equilibrium between the Sensex and other major indices are achieved within very short period as opposed to what prior literature has suggested. We argue that this level of international cointegration among major stock markets of the world provides better risk management opportunities for investors holding global portfolio investment. And evidence of cointegration among major markets improves upon the issue of information asymmetry and facilitates more rational capital allocation.

Keywords: *Co-integration, Comovements, Cross-market linkages, Indian stock market*

1. INTRODUCTION

Stock markets have always been of prime interest for people- be it common men to finance professionals. In our paper we have tried to decipher the cross linkage and relations of various global indices. SENSEX is used to observe the growth and development of industries and also to study the shifts in the Indian economy. Volatility of SENSEX is dependent on a wide range of factors global indices and USD/INR exchange rate being few of them. It was seen that almost all stock markets fell together in October 1987, despite widely differing economic circumstances showing transmission of volatility between stock markets (Mervyn A. King and Sushil Wadhwani 2015).

Multiple theories are prevalent to understand the movement of these indices:

- Momentum is the most basic theory of all which states that markets continue to move in the same direction. More people invest in the market under the assumption that it will continue to go up. This leads to more demand and ultimately higher price. This further encourages more people to buy and creates a positive feedback loop. The loop breaks after there is no buyer left to buy at such a high price. This results in downfall of the market. Seeing the prices rolling down, people panic and rush to sell their stocks lowering the demand and the game continues.
- Mean Reversion supports the hypothesis that the stock tends to revert to an average value over a period of time. Historically low price stocks represent an opportunity to beat the market subject to ability to pick right stock while historically high priced stocks are not advisable as the prices of these stocks will converge to average over time. The research is still inconclusive about whether stock prices revert to the mean.
- Efficient Market Hypothesis interprets that it is impossible to beat the market consistently through analysis of historical stock prices as market prices already reflect all the information available in the market and will only react to new information arising in the market.
- Value Stocks states that mispricing and correction consistently happens in the market.

Cointegration analysis helps us to infer the stochastic relationship between two non-stationary processes. Specifically, it tells us how two variables are related to each other with respect to time and their equilibrium relationship. Several statistical procedures exist to infer such relationships like unit root test which is used to check whether the data selected for the study are stationary or non-stationary, Pearson's Correlation Coefficient test which is used to measure the degree of linear association and relationship between two or more random variables or observed data values, Johansen's Cointegration test which is applied to test the presence of long-run equilibrium relationship between the selected time series data and the Granger Causality test which is used to check the short-run relationship between the selected variables. Some of the other stock indices of the US like the NASDAQ, DOW JONES and S&P 500 can be correlated to SENSEX. A study of the dollar across critical areas of international trade and finance suggests that the dollar has retained its standing in key roles. The dollar serves as a central currency in the exchange rate arrangements of many countries (Linda S. Goldberg 2010).Moreover, options trading in NSE only takes place on the currency pair of USDINR. There is hardly any structured study on SENSEX and its relationship with the global stock markets and its dependency on the exchange rate of USDINR.

2. LITERATURE REVIEW

A model showing "contagion" was constructed by them which occurred as a result of attempts by rational agents to infer information from price changes in other markets. Multilateral interaction is detected in substantial amounts among national stock markets and the dynamic response pattern is found to be generally consistent with the notion of informationally efficient international stock markets (Cheol S. Eun and Sangdal Shim 1989).

Time-series and cross-sectional models analyze the reasons that volatility is different across emerging markets, particularly with respect to the timing of capital market reforms (Geert Bekaertac and Campbell R.Harveybc 1997). The international covariance and correlation matrices are unstable over time (François and Bruno Solnik 1995). An examination of stock market integration of some emerging stock markets (Brazil, China, Mexico, Russia and Turkey) with that of the developed markets (US, UK and Germany) show evidence of the existence of short-run integration among stock markets in emerging countries and the developed markets (Omar M.Al Nasser and Massomeh Hajilee 2016). Financial development has a positive effect on stock market integration.International trade integration is not associated with stock market integration (Chaiporn Vithessonthi and Sriyalatha Kumarasinghe 2016) (Abdullah R.Alotaibi and Anil V. Mishra 2017) Global financial crisis has a significant negative impact on integration index. Cointegration (Engle and Granger 1987) deals with the relationship between non-stationary time series sharing a common stochastic trend. Some kind of long-run equilibrium is established between the time-series. This relationship is common for economic data such as stock price indices. We verified the assumptions of Multiple Linear Regression by using our data and also performed tests for collinearity. Mentioned in the paper are three checks for multicollinearity, Correlation Matrix Analysis, VIF Analysis, Eigen System Analysis. Collinearity of predictor variables in a linear regression refers to a situation where explanatory variables are correlated with each other. The terms, multicollinearity and ill conditioning, are also used to denote the same situation.Collinearity is worrisome for both numerical and statistical reasons.(Dan Liao and Richard Valliant[1] ,Survey Methodology). From our VIF analysis we found out that VIF for NASDAQ, NYSE, S&P 500 and DOW JONES are way greater than others, which indicate that they are highly correlated which is obvious since all represent US market. Next, we have reduced the number of regressors by using the VIF(Variance Inflation Factor) values of the diagonal elements of the VIF matrix. The threshold value for the diagonal elements for the elimination of variables was chosen to be some suitable value and the variables whose diagonal entry was above the threshold value was eliminated by arranging the diagonal elements in an ascending order. The extent of multicollinearity was measured through an eigensystem analysis wherein eigenvalues for X'X matrix were calculated and then using some threshold value of eigenvalues, some highly correlated features were eliminated. Since the VIF analysis showed a very good result and we got a good value of adjusted r square we considered this as our final model. For residual analysis we plotted a Q-Q plot which is plotted to see if the data follows a common distribution. We got the normal Q-Q plot of the standardized residuals which is almost a straight line indicating that the errors are normally distributed.This is plotted for the training data set and testing data set. Ideally, this plot shouldn't show any pattern. But if you see any shape (curve,U-shaped), it suggests non-linearity in the data set. In addition, if you see a funnel shape pattern, it suggests your data is suffering from heteroskedasticity, i.e. the error terms have non-constant variance. In our case no such pattern is observed. Calculation of the index is based on a free-float capitalization method while weighting the effect of a company on the index. Sensex is calculated using the "Free-float Market Capitalization" methodology. As per this methodology, the level of index at any point of time reflects the Free-float market value of 30 component stocks relative to a base period. The market capitalization of a company is determined by multiplying the price of its stock by the number of shares issued by the company. This market capitalization is further multiplied by the free-float factor to determine the free-float market capitalization.

3. MEASURES AND METHODS

3.1. Data Sampling

The data was collected for 10 years i.e. from 1st April 2007 to 31st March 2017 for training and the next 7 months data was taken into account for testing. Our data has eleven base variables

which are NYSE, NASDAQ, SSE Composite, HANGSENG, S&P 500, NIKKEI 225, Dow Jones, EURONEXT, NIFTY and USD/INR exchange rate and we tried to find their relation with Sensex. Data was collected from Yahoo! Finance (https://in.finance.yahoo.com/). The data was collected for closing price on a weekly basis so in all we had 522 weeks. It formed a data set matrix of the order of 522 x 11. So each data point consisted of a dependent variable and 10 independent variables(as they were initially assumed to be).

3.2. Data Description

Fig. 1 shows the relationship between Sensex and other variables. Each of the charts has the data scaled between 0 and 1 over the entire set. Financial crisis of 2007–2008 can be seen in every chart. From the charts we observe that indices other than SSE Composite, Hangseng and Nikkei 225 have followed positive trend after the crisis with no seasonality being observed. All the variables other than SSE Composite have almost linear relation with Sensex, whereas Nifty shows perfect linearity with Sensex which is obvious since they represent the same economy. We can also observe that SSE Composite, Hangseng and Euronext fell almost 100% during the crisis. SSE Composite has shown very unusual pattern in the year 2015 during which it went up by almost 50% and then again fell to same level. From the charts we observed that US economy has managed to follow a positive trend after the crisis, which has also reflected in weakening of Indian currency, whereas there are some ups and downs in other economies. Hangseng is moving at the same level since 2010.

3.3. Methodology

SENSEX is taken as the dependent variable here. However, the number of potential independent variables is unlimited and the model is referred to as multiple regression if it involves several independent variables. Regression models also can pinpoint more complex relationships between variables. Assumptions of multilinear regression analysis are normality, linearity, no extreme values. We have calculated correlation coefficient between dependent variable and each independent variable (Table 1) to get the numbers into play. Also, since the global markets are highly correlated it's important to check for multicollinearity. For this we have used three methods namely correlation analysis, eigen system analysis and VIF analysis. In correlation analysis we found out correlation coefficient between each of the regressor variables (Table.2) and we performed hypothesis testing (Table 3). In eigen system analysis we have calculated condition number (The ratio of the largest to smallest singular value in the singular value decomposition of a matrix). And In VIF analysis we found out VIF factor (=1/(1-r^2)) for individual variables by applying linear regression with remaining variables. Based on the results from these three analysis, we eliminated few variables and used linear regression model. Summary of the result of linear regression is shown in (Table.4). Using Linear regression model we tried to find out standard error, t value and P values for regressor variables. R squared and Adjusted R square values are used to check how close the data are to the fitted regression line. Also we have performed Residual analysis of the final model to check if the residuals follow normal distribution. To detect nonlinearity, unequal error variances, and outliers we have plotted residuals vs fitted values (estimated values). Principal Component Analysis (PCA) is used to explain the variance-covariance structure of a set of variables through linear combinations. It is often used as a dimensionality-reduction technique. This is a mathematical procedure that transforms a number of (possibly) correlated variables into a (smaller) number of uncorrelated variables called principal components. The first principal component accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible. In our analysis,we have tried eliminating the features one by one and observed the resulting change in the value of R square. The trend was shown in the report. We first calculated the eigenvectors corresponding

to each eigenvalue of X'X matrix which was a column vector and then considered each row of dataset matrix. We then computed their inner product and assigned each value as an element of a matrix P. The detailed analysis is shown in the report. After getting the final model we used testing data to see the validity of the model.

4. RESULTS

After the above algorithm was run, we found that almost every index was highly correlated to each other so elimination of correlated features was very important. Table: 1 shows the correlation coefficient between regressor variables and response variables (i.e. Sensex). Table: 2 shows the correlation coefficient between regressor variables. Table: 3 contains the t-values of all the correlation coefficients which happens to be a lower triangular matrix. These values were then used to test the hypothesis that the correlation between each pair of indices equals to zero (null hypothesis) or not (alternative hypothesis) (t = r*sqrt((n-1)/(1-r^2))). The indices other than HANGSENG, SSE Composite, EURONEXT and NASDAQ were removed and linear regression is performed on remaining data. Since the correlation coefficients were quite far away from zero, the null hypothesis was rejected for all pairs of indices which seems to be correct.

Table 1: Correlation coefficient between Sensex and different variables.

Features	Correlation Coefficient	Features	Correlation Coefficient
NASDAQ	0.940772	NIKKEI 225	0.742761
NYSE	0.837829	DOW JONES	0.907258
SSE COMPOSITE	0.176331	EURONEXT	0.615720
HANGSENG	0.603512	USDINR	0.766782
S&P 500	0.917250	NIFTY	0.998621

Since the correlation coefficients were quite far away from zero, the null hypothesis was rejected for all pairs of indices which seems to be correct. Figure 2 shows the correlation square.

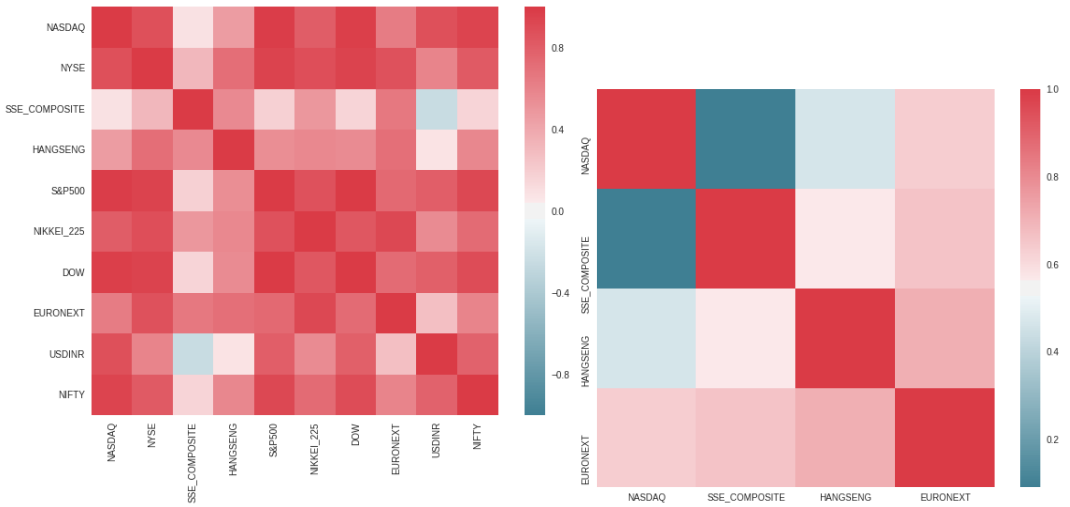

Fig. 2: Correlation matrix before and after removing correlated variables

Adjusted R-square for filtered data is : 0.936818016349
R-square for filtered data is : 0.937303098757

We can see that there is a significant decrease in R-squared which indicates that the closeness of the data to the fitted regression line has reduced.

4.1. VIF Analysis

Using VIF analysis NASDAQ, NYSE and DOW JONES are removed and S&P 500 was considered.

Table 5: Table shows the VIF factor.

Features	Variance Inflation Factor (Before removal)	Variance Inflation Factor (After removal)
NASDAQ	223.816	---
NYSE	261.594	---
SSE Composite	7.080	3.896
HANGSENG	17.677	4.126
S&P 500	1406.331	38.745
NIKKEI 225	21.967	19.254
DOW JONES	263.126	---
EURONEXT	31.898	27.000
USD to INR	27.413	15.987
NIFTY	29.245	11.350

Again we have run linear regression for estimating the parameters after removing some of the highly correlated variables.

Adjusted R-square for filtered data is: 0.987502019149
R-square for filtered data is: 0.987670261199

From the result shown above we can see that after eliminating four attributes also there is no significant change in the r-square value. Also intercept and coefficients of Hang seng and Nifty are significant and remaining are not. Hence we can say that there was multicollinearity in the data. All the three results were consistent with the fact that the input values were highly correlated and filtering was a must. From the above analysis we saw that VIF analysis showed a very good result and we got adjusted r-square of 0.987502019149. Therefore we are considering this as our final model. A quantile-quantile (Q-Q) plot is plotted to determine if the data sets follow a common distribution. This is the normal Q-Q plot of the standardized residuals which is almost a straight line indicating that the errors are normally distributed. This is plotted for the training dataset and testing dataset:

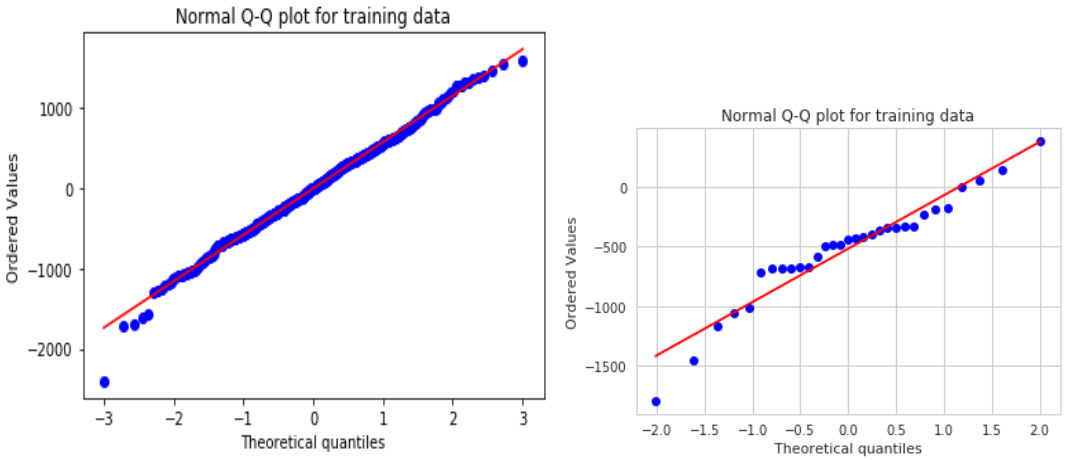

Fig. 3: Q-Q plot of residuals on training and testing data.

Fig. 4 shows plot of residuals versus fitted values for training and testing data.

Fig. 4: Plot of residual vs fitted values for training and testing data.

4.2. Principal Component Analysis (PCA)

Fig. 5 shows R-square values and number of columns removed from the end.

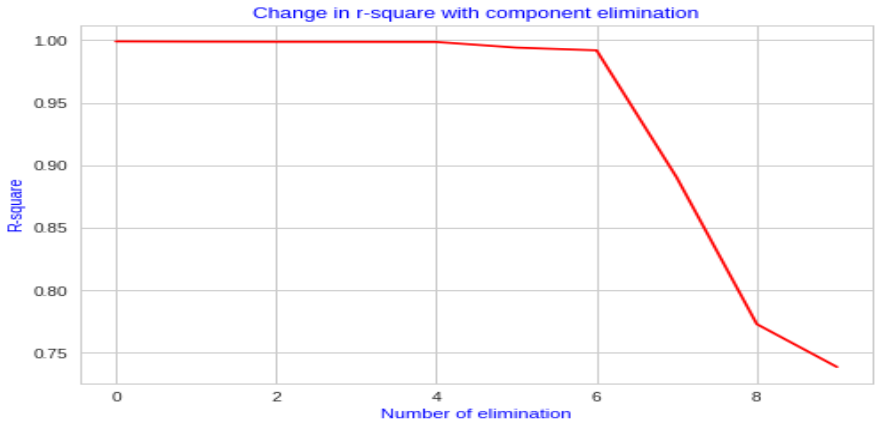

Fig. 5: Change in r-square values with component elimination.

As we can see there is a sudden decrease in the r-square value after the elimination of 6 component from the end, which indicate that last 6 components should be eliminated to get an accurate data. To test our model we used a test data set. The adjusted R-square after using PCA to the data was 0.97471272927 for this test data set.

Time Series analysis:

AR(1) (or Sensex(t) with Sensex(t-1)) :

1. Intercept is not significant (t-value = 1.121) and coeff of Sensex(t-1) is 0.9932 with t-value 218.070.

Sensex(t) with Sensex(t-2) :

1. Intercept is not significant, but t-value (=1.634) is more than that of Sensex(t-1) and coeff of Sensex(t-2) is 0.9862 with t-value 153.600.

Sensex(t) with Sensex(t-3) :

1. Intercept is 348.2119 with t-value 2.113, which is significant.
2. Coeff of Sensex(t-3) is 0.9780 with t-value 122.122.

Sensex(t) with Sensex(t-4) :

1. Intercept is 463.5938 with t-value 2.452 , which is significant.
2. Coeff of Sensex(t-3) is 0.9708 with t-value 105.845.

So we can observe that as we go on relating Sensex(t) with previous observation, significance of intercept increases and that of slope deceases.

AR(2):

Features	Coefficients	Standard Errors	t values	Probabilites
Intercept	105.2532	93.644	1.124	0.262
Sensex(t-2)	-0.0047	0.044	-0.107	0.915
Sensex(t-1)	0.9979	0.044	22.582	0

Sensex(t) shows high correlation with sensex(t-1) only rest are not significant.

AR(3):

Features	Coefficients	Standard Errors	t values	Probabilites
Intercept	111.9288	93.592	1.196	0.232
Sensex(t-3)	-0.0706	0.044	-1.606	0.109
Sensex(t-2)	0.066	0.062	1.059	0.29
Sensex(t-1)	0.9976	0.044	22.608	0

Sensex(t) shows high correlation with sensex(t-1) only, rest are not significant.

5. CONCLUSION

One key factor to the high levels of correlation has been the financial crisis. The credit crunch and subsequent economic slowdown was a truly global event; there were few corners of the economy in any country that didn't feel the impact. This means that markets everywhere sold off in huge numbers at the beginning of the crisis, and when the smoke cleared, they all came back in a big way. Globalisation is also one of the reason for high correlation between global markets.

To test our model we used a test data set in which data from 1st April 2017 to 30th October 2017 was collected (a total of 31 data points).

- From the inspection of the QQ plot we concluded that our model did not have any outliers.
- Based on the PCA we conclude that the accuracy on the test data is around 97% the possible reason could be that we have removed the highly correlated parameters by using various methods.

Indian market is highly dependent on US market. NYSE comes into the final model as it is the largest equities-based exchange in the world, based on total market capitalization of its listed securities.

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ECONOMIC APPLICATIONS OF ADAPTIVE KALMAN FILTER

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ABSTRACT

In this paper, we propose an adaptive implementation of the Kalman filter (KF), when, similarly to the EM method, the phases of KF estimation in the window and minimization of average prediction error to determine the optimal estimates for the system model parameters in this moment are sequentially alternated. Then the window moves one-step forward. And so on. The developed improvement is applied to the previous economic studies of the author. In analyzing the Gross Domestic Product and the efficiency of the Russian economy as a whole, with the help of adaptive KF was obtained a more detailed picture of the changes in the coefficients of direct and capital expenditures. When using a 14-year movable window, it was found that the direct costs factor from 2010 to 2015 grew from 0.19 to 0.533, reflecting a decline in production efficiency. The coefficient of capital expenditures decreased from 2.57 to 0.45, which means an improvement in the productivity of newly commissioned capacities. True, the period of investment digestion has increased to 4-5 years. In the monthly forecasting of the dollar to ruble exchange rate, it became possible to reduce the average error of forecasts, based on information available one step before the forecasted moments (RMSEA). So, with KF at constant parameters, it was 1.99 ₽. In the adaptive version, RMSEA is 1.39 ₽, that is, the best predictions were obtained with the adjustment of the parameters according to the data of the last 3 months preceding the forecasting moment. The dynamics of the estimated parameters of the model carries valuable economic information, for example, the inflow of dollar investments into Russian assets after a spike in October-November 2016 fell at large MICEX indexes.

Keywords: *adaptive Kalman filter, exchange rates, GDP*

1. INTRODUCTION

When applying the Kalman filter (KF), there is always the problem of specifying the parameters of the system model. They may be known in advance (which is rare in economic applications) otherwise preliminarily estimated in one way or another (model training). Most often, using the Kalman filter, a likelihood function of output observable quantity sample $\{y^t\}$ is constructed and estimating the parameters of the system model is carried out by the maximum likelihood method (see, for example, (Borodachev, 2016, 2018)). Alternatively, a method is used to minimize the mean square error of the KF prediction (RMSE) (see, for example, (Borodachev, 2017a, 2017b)). For such a training, we use either all available data $t = 0, ..., T-1$ (output y^t and control u^t) or some fixed time interval. These parameter values are then used in the KF to estimate system states and predictions. Often the parameters of the system vary with time, so the task arises of their adaptive estimation and application. Note that sometimes this dynamics of the system parameters is a central (main) interest. In this paper, we propose the idea of a possible solution of this problem and present the results of application in some economic studies. The basic idea is similar to the EM method (Dempster et. al., 1977), when the phases of estimation and minimization are sequentially alternated. Let us denote w - the number of window points (width) of the preliminary estimation of the parameters, i - the initial position of the beginning of the moving window of the regular parameter estimation and its width v. The detailed algorithm will be described elsewhere (Borodachev, 2017b). Calculations are carried out in PTC Mathcad Prime™.

2. APPLICATION TO THE ANALYSIS OF GDP AND EFFICIENCY OF THE RUSSIAN ECONOMY

The gross output y^t (in year *t*) is divided into intermediate consumption and the final product (national income) x^t

$$y^t = A^t y^t + x^t ,$$

A^t – direct costs matrix.

In Leontief dynamic model (1986), the end product x^t is used for investment (gross accumulation) i^t and final consumption u^t

$$x^t = i^t + u^t .$$

Investments provide the commissioning of new production facilities

$$iw^t = \sum_{l=0}^{\infty} j_l i^{t-l} ,$$

which in turn give an increase $\Delta y^t = (y^{t+1} - y^t)$ in gross output by the next year

$$iw^t = B^t \Delta y^t .$$

B^t - matrix of capital expenditures (at output growth).

In work (Borodachev, 2018), for the Russian economy as a whole in the period from 1995 to 2015 was assumed a linear form of time dependence of the coefficients of direct and capital expenditures and their growth was found. It is interesting with the help of adaptive KF to get a more detailed picture of their changes. We use the same data and the same model of the system. The unit of time is a year. If we now choose $w = 1$, $i = 1$, $v = 14$, then the RMSEA of the forecasts of the output value - gross output in the 2011-2015 period is 5.32 trillion ₽. See Fig. 1, which shows the observed data and forecasts on information at the time of the year ago.

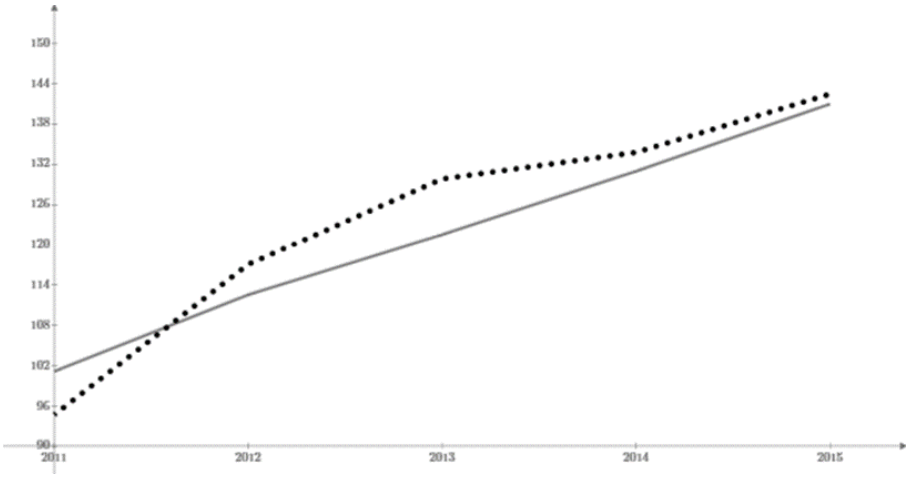

Figure 1: Observed gross output (solid curve), forecasts for adaptive KF (point curve) at current prices; trillion ₽.

It is found, see Fig. 2 that the direct costs factor from 2010 to 2015 grew from 0.19 to 0.533, reflecting a decline in production efficiency. The coefficient of capital expenditures decreased from 2.57 to 0.45, which means an improvement in the productivity of newly commissioned capacities. True, the period of investment digesting has increased to 4-5 years (see behavior of $\hat{\lambda}$).

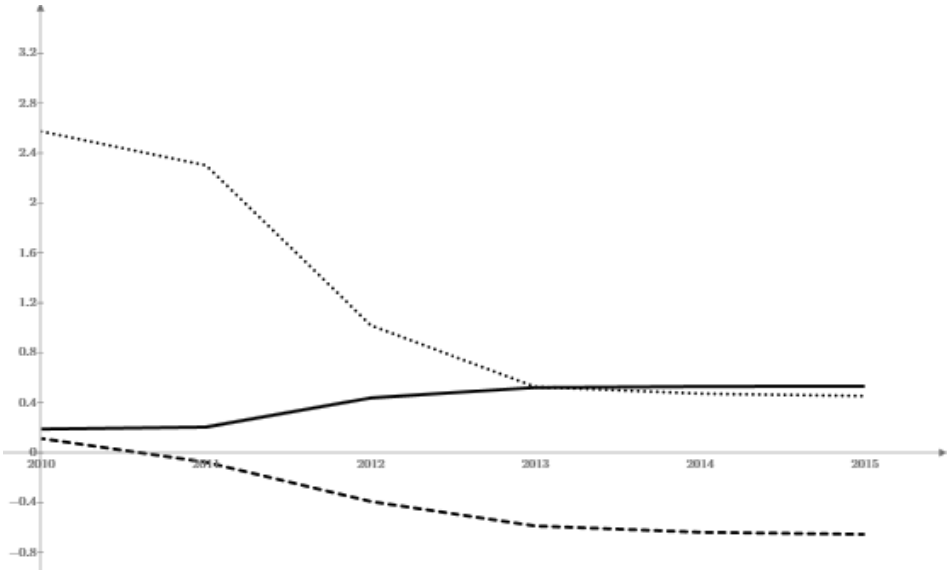

Figure 2. Parameter estimates: direct costs factor (solid curve), capital costs factor (point curve), $\hat{\lambda}$ (dashed curve).

GDP after the failure in 2013 -2014 in 2015 returned to the level of 2010. Actual investments, really increasing output (according to the present calculation it is the difference between the estimated GDP and final consumption), see in Fig. 3.

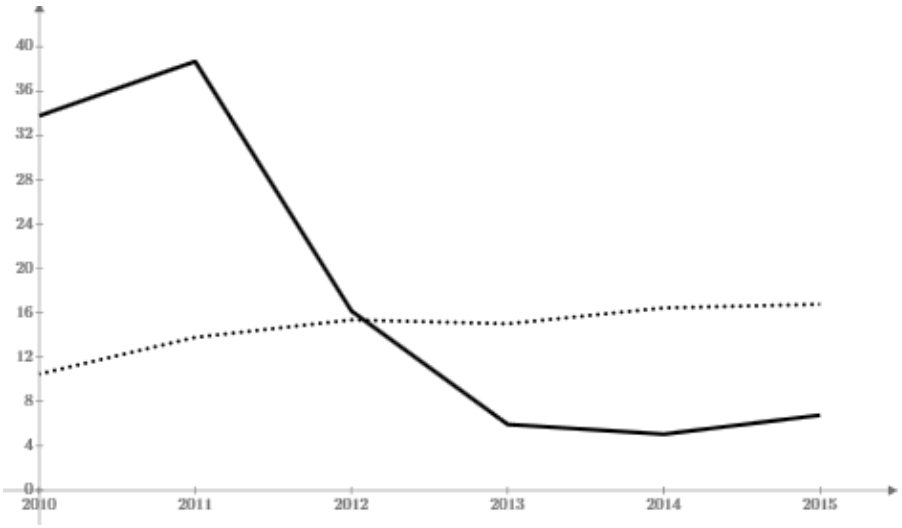

Figure 3. Actual investments (solid curve) and information about investments collected by Rosstat (point curve) at current prices; trillion ₽.

Their comparison shows that until the end of 2011 there were additional investments taken from (masked under) consumption or there was the import of capital. After this moment, on the contrary, part of the actual final consumption was declared as investments (falsified).

3. APPLICATION TO MONTHLY FORECASTING OF THE DOLLAR TO RUBLE EXCHANGE RATE

Let us summarize improvements, achieved in (Borodachev, 2017b) with adaptive KF. We investigate the influence of changes in foreign exchange reserves, the balance of foreign trade, the monetary base, the MICEX index and the price of oil on the dollar to ruble exchange rate. With constant parameters (usual KF), RMSEA of exchange rate predictions in the time range t = 22, ..., 28 (unit of time - month) was 1.99 ₽. If we then choose w = 17, i = 14, v = 3, then RMSEA in the same range is 1.39 ₽. This v turned out to be the best, that is, the best predictions were obtained with the adjustment of the parameters from the data of the last 3 moments preceding the moment of forecasting. See Fig. 4, which shows the observed data and forecasts on information at the time of the month before.

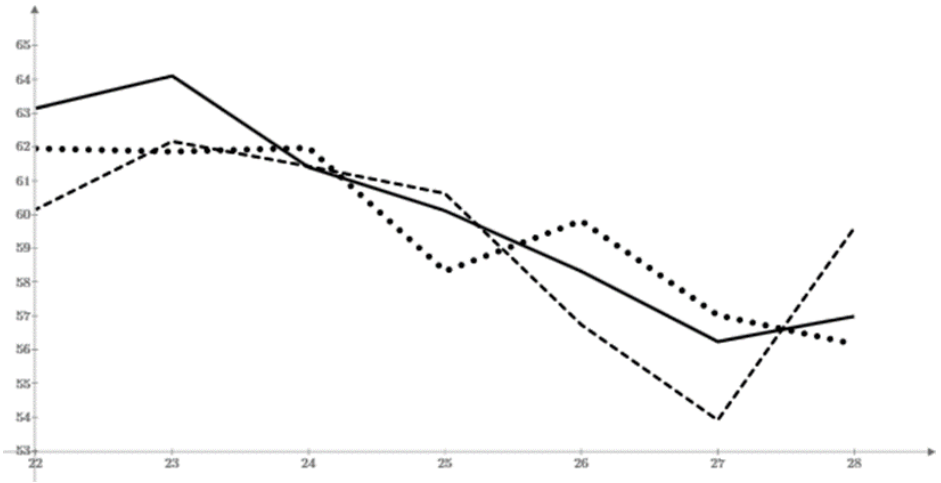

Figure 4. Monthly data from November 1, 2016 to May 1, 2017. Observed USD / RUR rate (solid curve), usual KF forecasts (dashed curve), forecasts for adaptive KF (point curve).

The dynamics of the estimated parameters of the model is shown in Fig. 5. All estimates are normalized to their absolute values at t = 17: $\hat{\beta}_0$ = -5.06, $\hat{\beta}_1$ = 6.90, $\hat{\beta}_2$ = 3.67, $\hat{\gamma}_0$ = -0.33, $\hat{\gamma}_1$ = 0.77, $\hat{\gamma}_2$ = 0.21, $\hat{\gamma}_3$ = 3.02.

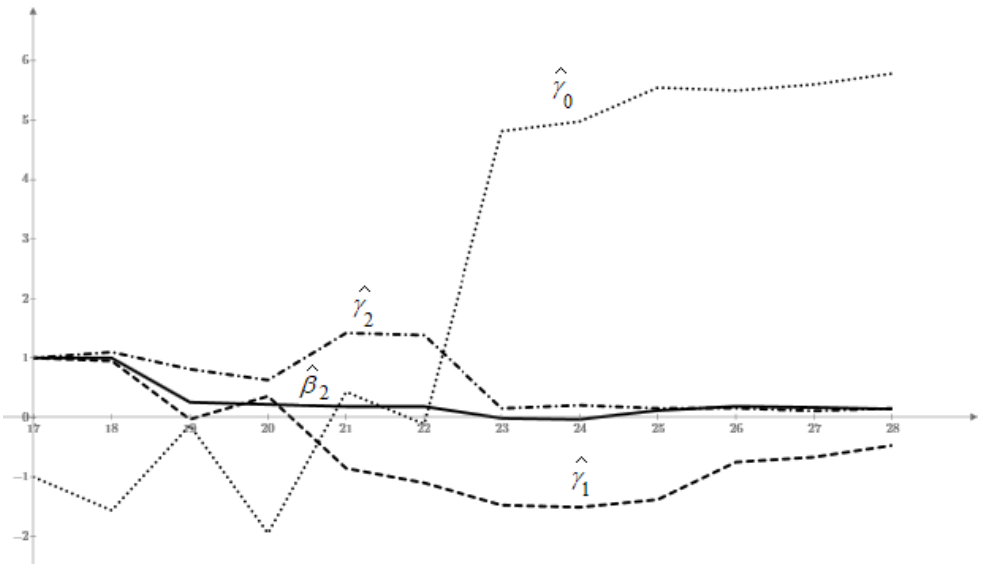

Figure 5. Monthly estimates of parameters from June 1, 2016 to May 1, 2017.

$\hat{\beta}_2$ - the change in the monetary base in recent months has little effect on the investment of rubles in dollars. $\hat{\gamma}_0$ - in the summer of 2016, the increase in the price of oil reduced the inflow of dollars into the currency market (!), recently significantly increases. $\hat{\gamma}_1$ - shows the efforts of the Central Bank to maintain the exchange rate, especially at the end of 2016 and early 2017. $\hat{\gamma}_2$ - the influx of dollar investments in Russian assets after the spike in October-November 2016 fell at large MICEX indices. Estimates $\hat{\beta}_0$, $\hat{\beta}_1$ and $\hat{\gamma}_3$ vary little.

4. CONSLUSION

Proposed adaptive Kalman filter gives forecasts that are more adequate and reveals the dynamics of economic systems inner parameters. In the future, it is intended when considering GDP to take into account the effect of increased consumption on GDP growth and the presence of hidden costs.

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COMPARISON AND ANALYSES OF INNOVATION CAPACITY ACCORDING TO COUNTRIES CLUSTERS

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ABSTRACT

Recognition of the importance of countries' innovative capacity for economic growth and development is consensual and increasingly present in academic and political discourses.
The Organization for Economic Co-operation and Development (OECD), recognizing the importance of analysing and comparing innovation across countries, developed in its report (European Innovation Scoreboard – EIS) a composite indicator of innovation. The performances of the innovation systems of each country are estimated through the average performance of several indicators, which are grouped into different dimensions of which stand out:

- *Framework conditions that capture the main drivers of innovation performance external to the firm and cover three innovation dimensions.*
- *Investments that capture public and private investment in research and innovation and cover two dimensions.*
- *Innovation activities that capture the innovation efforts at the level of the firm, grouped in three innovation dimensions.*
- *Impacts that cover the effects of firms' innovation activities in two innovation dimensions: Employment impacts and Sales effects.*

In this work we use cluster analyses that classify data by observing similarities and dissimilarities between the data referring to the innovation indicators. The use of this method to analyse the dimensions that make up the innovation indicator proposed in the EIS allows to group the different countries according to their similarities. That is, to group the various countries, through their greater or lesser capacity and success in each of the dimensions of innovation and then analyse the impact that these dimensions have on each other. In this way it is possible to identify the countries with the greatest innovative capacity and to compare the results with the results presented by the OECD.
Keywords: *Cluster Analysis, Innovative capacity and Innovation results*

1. INTRODUCTION

Innovation is a key factor in the economic growth and development of countries. In this way, it is fundamental to measure the various aspects that make up and give rise to the results of a country's innovative activity. The Organization for Economic Cooperation and Development (OECD) seeks, in the European Innovation Scoreboard, to measure and compare innovation in countries. This study presents the definition of the concept of innovation as well as its importance and how the capacity and results of innovation of the countries can be measured.

The OECD uses a set of 27 indicators grouped in four different dimensions that lead to the innovation index. Based on the results of this indicator the OECD groups the 36 countries under analysis into 4 groups. The purpose of this study is to use cluster analysis, which designates a series of sophisticated statistical procedures which can be used to classify objects and people by observing the similarities and dissimilarities between them. With the cluster analysis it is possible to group the 36 countries and compare these results with the ones proposed by OECD. Additionally, it is presented the relationship that each one of the four dimensions establishes with the other dimensions. This relation is measured and compared using the OECD group of countries and the groups of countries resulting from the use of cluster analysis.

2. INNOVATION

The recognition of innovation as a determining factor for the economic growth of countries is widely recognized and has been the subject of several studies over the years. This concept must be defined and as shown in table 1, there are several attempts to define the concept of innovation. It is possible to verify that it is a broad concept that covers several organizational and economic levels.

Authors	Definition of Innovation
Schumpeter, J. (1939)	Introduction of a new or improved product, introduction of a new production method, opening of a new market, a new source of raw materials or semi-manufactured goods or a new form of industrial organization.
Drucker, P. (1997)	An instrument of business activity that consists of the change provoked from the available resources, with a view to the creation of wealth.
OECD (Oslo Manual) (2005)	Implementation of a new or significantly improved product (good or service), process or method of marketing, or a new organizational method in business practices, workplace or external relations
Porter, M. (2007)	Marketing of a new product, service or process that originated in an invention, constituting a competitive advantage.
Teixeira, S. (2011)	Creation and exploration of innovative ideas, creation of new things or the rearranging of old things, but in a new way.
Cunha, Rego, Cunha, Cabral-Cardoso & Neves (2016)	New technological solutions, work processes, launch of new products, competition in new markets, establishment of new agreements with customers or suppliers, discovery of raw materials, new manufacturing processes, new ways to provide after sales service, new modus operandi for the relationship with customers, among other practices.

Table 1. Definitions of the concept of innovation (*Schumpeter, 1939; Drucker, 1997; OECD, 2005; Porter, 2007; Teixeira, 2011 and Cunha et al, 2016*)

According to the Frascati Manual (OECD, 2015), there are still other concepts that are strongly related to innovation, such as R&D that includes the systematically developed creative work to increase the stock of knowledge. Kotsemir & Meissner (2013) emphasize that R&D comprises fundamental research, applied research and experimental development resulting from the use of existing knowledge, the creation of new knowledge and the combination of both.

Based on the above, it is verified that this concept is the relation between several concepts and in this way, must be seen as a process. In the same sense, Schumpeter (1939) made the distinction between the trilogy: invention, innovation and diffusion. According to several authors, this definition remains current and does not pretend to be a reductive of this concept. In this way, the innovation process be the result of 3 stages, as shown in figure 1.

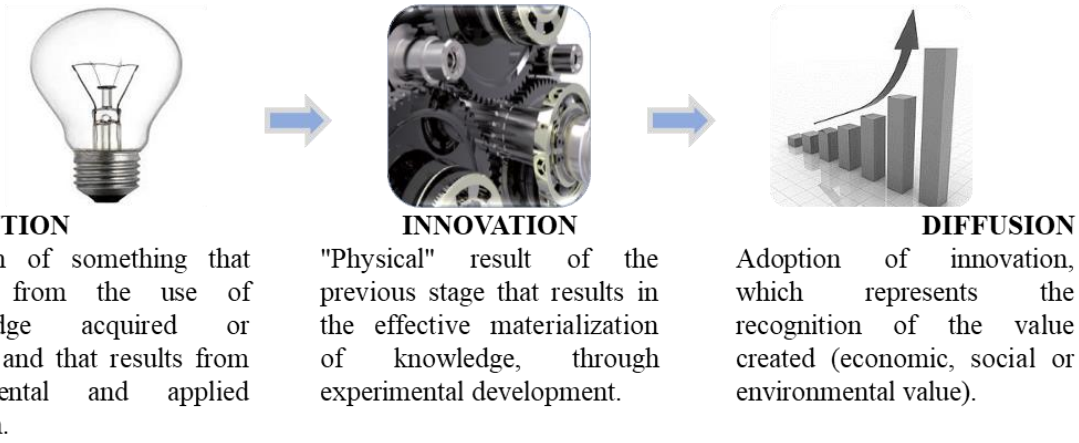

Figure 1. Innovation process (*Adapted from Teixeira, 2011; Cunha et al, 2016 and Planing, 2017*)

Innovation is the successful outcome of this full process, being more than the individual results of each of its stages and as mentioned by Boons, Montalvo, Quint & Wagner (2013), the proper link between these steps is fundamental and the agents that drive competitiveness are essential for the diffusion of innovation. The way this process is seen has changed over the past few decades (Chesbrough, 2003; Kotsemir & Meissner, 2013) and Silva, Bagno e Salrmo, 2014). The first generation of innovation models is marked by a sequential, linear and simple view of the process, where the market functioned as a receiver of research results developed in universities. This generation of models was common in the 1950s and 1960s, when demand was high, and supply was low. The second generation of innovation models (1960s and 1970s) maintains the perspective of being a linear and sequential process, however, it assumes that the way forward is the inverse of the previous model, where market needs are opportunities to explore. The 3rd generation models (1970s and 1980s) broke the vision that the Innovation process was unidirectional and introduced a fundamental and enriching aspect: the search for integration and balance between market needs, research, production and marketing. The 4th generation of innovation models (1980s and 1990s) is characterized by the view of innovation as the relationship between several parallel processes. In the Integrated business processes models, the innovation process went from sequential to parallel and with integrated development where production and sales are integrated to work simultaneously in the development of the products / services. In this type of models there is a constant flow of feedbacks and a high intercompany cooperation, integrating suppliers in the initial stages of product development. The 5th generation of models (1990s and 2000s) emerged from the need to communicate with the customer and integrate learning at an increasingly fast pace, with the innovation process evolving towards greater vertical integration within enterprises and at the same time greater horizontal integration, broadening the horizons of collaborative research. The 6th generation of innovation models (2000s and 2010s) is fundamentally characterized by the vision of an open process, favoured by the created synergies, where the horizons of R&D started to be sustained by the creation of strategic alliances between several economic agents that, through joint ventures and R&D, contribute for a competitive and simultaneously collaborative research.

It should also be noted that within the so-called open innovation, Kotsemir & Meissner (2013) refer to the 7th generation of innovation models, which can be considered from 2010. The main difference with the 6th generation models is that they based in collaborative innovation and exploration of multiple paths, while the 7th generation models add to this vision the focus on individual conditions and structures that allow distinct types of innovation to be achieved.
In sum, the evolution of the vision on innovation models has been adapted to the needs of the markets and organizations that seek to become more efficient and competitive. Common to the various generations of innovation models is the fact that the outcomes of the innovative activity results from the relationship between various dimensions, in terms of fundamental research, applied research, experimental development, synergies between different organizations, among other aspects. In this sense and verifying that it is a complex concept, the way innovation can be measured is using several indicators that represent the several aspects of the innovative activity. Organizations such as the OECD through the European Innovation Scoreboard and the World Intellectual Property Organization (WIPO), together with Cornell University and INSEAD, through the Global Innovation Index, have sought, over the years, to determine how it is possible to measure and evaluate aspects that characterize the innovation of countries.
The latest OECD report (2017) analyses a set of 27 indicators, grouped into 10 dimensions, which are grouped into 4 large dimensions, giving rise to a composite indicator of innovation, as shown in Figure 2.

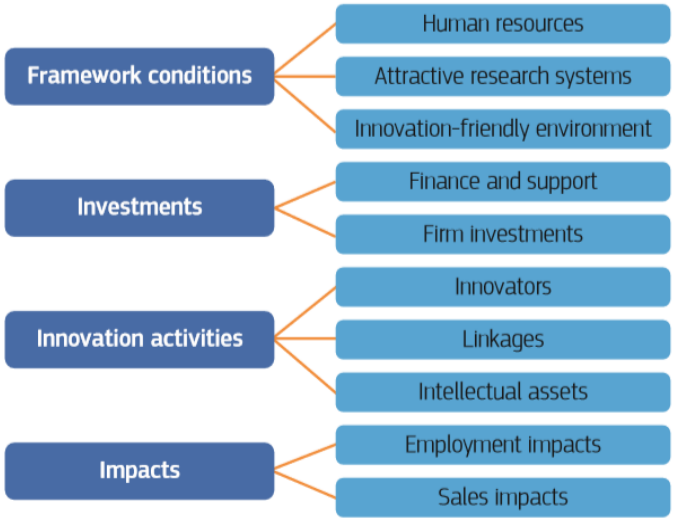

Figure 2. EIS 2017: Measurement framework (*OECD, 2017*)

As said before the EIS measurement framework distinguishes between four main types of indicators and ten innovation dimensions, capturing in total 27 different indicators. The Innovation Index is formed by:

- Framework conditions that capture the main drivers of innovation performance external to the firm and cover three innovation dimensions: Human resources, Attractive research systems, as well as Innovation-friendly environment.
- Investments that capture public and private investment in research and innovation and cover two dimensions: Finance and support and Firm investments.
- Innovation activities that capture the innovation efforts at the level of the firm, grouped in three innovation dimensions: Innovators, Linkages, and Intellectual assets.
- Impacts that cover the effects of firms' innovation activities in two innovation dimensions: Employment impacts and Sales effects.

The aim of this indicator is to measure and compare the innovation of the countries, grouping them into: modest innovators, moderate innovators, strong innovators and leaders in innovation. In the EIS, each of these dimensions is also measured and the results refer to a single year.

3. METHODOLOGY

3.1. Introductory Remarks

The purpose of the present investigation is to determine the level of similarity between the 36 countries analysed in the European Innovation Scoreboard. To achieve this, we used cluster analysis because in this case we can group countries by their degree of similarity and dissimilarity.The purpose of this investigation is also to compare how the similarities between the groups of countries will be different by using the data of only one year (2016) or by considering the data for the period 2009 to 2016, and as the OECD groups the countries into four groups, four clusters were also used in cluster analysis. To compare and highlight the differences between groups of countries, the groups of countries presented in the EIS (OECD, 2017) were used as a starting point, which considers:

- Modest innovators - Bulgaria, Romania, Former Yugoslav Republic of Macedonia and Ukraine.
- Moderate innovators - Czech Republic, Estonia, Greece, Spain, Croatia, Italy, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Slovakia, Serbia and Turkey.
- Strong innovators - Belgium, Ireland, France, Luxembourg, Austria, Slovenia, Iceland, Israel and Norway.
- Innovation leaders - Denmark, Germany, Netherlands, Finland, Sweden, United Kingdom and Switzerland.

3.2. Data and definition of variables

The data collected are annual (2009 to 2016) and refer to the 36 countries mentioned in the previous point. Data were collected from the European Commission, from the OECD Report (2017): European innovation scoreboard 2017. Were used 27 indicators, grouped into four different dimensions:

- The dimension “Framework Conditions” includes: New doctorate graduates; Population completed tertiary education; Lifelong learning; International scientific co-publications; Scientific publications among top 10% most cited; Foreign doctorate students; Broadband penetration and Opportunity-driven entrepreneurship.
- The dimension “Investments” includes: R&D expenditure in the public sector; Venture capital investments; R&D expenditure in the business sector; Non-R&D innovation expenditure and Enterprises providing ICT training.
- The dimension “Innovation activities” includes: SMEs with product or process innovations; SMEs with marketing or organisational innovations; SMEs innovating in-house; Innovative SMEs collaborating with others; Public-private co-publications; Private co-funding of public R&D expenditures; PCT patent applications; Trademark applications and Design applications.
- The dimension “Impacts” includes: Employment in knowledge-intensive activities; Employment fast-growing firm’s innovative sectors; Medium & high-tech product exports; Knowledge-intensive services exports and Sales of new-to-market and new-to-firm innovations.

3.3. Clusters analysis

Multivariate analysis of data deals with large data sets and, consequently, one of the main objectives is to organize such data.

The organization of these data can be carried out from different perspectives: to find the main factors that explain their diversity, to organize them into groups, etc. The classification methods organize the data into groups (or classes) of variables or of objects / individuals, so that the units of a given group are more similar to each other than they are to units belonging to the other groups - to which they are less similar (more dissimilar). There are Hierarchical and non Hierarchical methods of classification, the last ones designed by Partition methods.

To compare the partitions the classical Rand's index can be used, and given by the expression: $I_R = \frac{2A}{p(p-1)}$, where, considering two partitions P_1, P_2 of p objects with the same number of groups k. Four types of pairs will be found: number of pairs belonging simultaneously to the same groups of P_1 and P_2 (a), number of pairs belonging to different groups of P_1 but to the same of P_2 (b), number of pairs belonging to different groups of P_2 but to the same of P_1 (c)and number of pairs belonging to different groups of P_1 and P_2 (d). A=a+d represents the total number of agreements (adapted from Silva et al. (2004)), this index value is comprised between 0 and 1. Among the Partition methods a classical one is k-means. This method need the knowledge of k - and consist of two fundamental steps:

1. starts from initial classes (of elements), random or pre-fixed;
2. A sequential process of reassigning the elements into groups is continued with the aim of obtaining groups in which the similarity between the elements of each group is maximal. (Gordon, 1999).

4. RESULTS AND DISCUSSION

First are presented the Partition composed by the groups of countries proposed by the OECD in relation to the innovation index for 2016. Based on the 27 indicators of 2016 for the 36 countries the Partition resulting from the k-means method also presents four groups of countries. Comparing these two partitions using the Rand index, I_R =0,68 is obtained, and wich means that the two partition are moderately correlated. As can be seen in table 2, the countries considered by the OECD as "Modest Innovators" (Group 3 of OCDE) present a similar behaviour, being verified through cluster analysis, since they remain in the same group (Group 2 of Cluster Analysis).

Table following on the next page

OECD - Innovation Index 2016

1	2	3	4
BE	DK	BG	CZ
IE	DE	RO	EE
FR	NL	MK	EL
LU	FI	UA	ES
AT	SE		HR
SI	UK		IT
IS	CH		CY
IL			LV
NO			LT
			HU
			MT
			PL
			PT
			SK
			RS
			TR

Cluster Analysis - with 27 indicators of 2016

Group 1	Group 2	Group 3	Group 4
BE	BG	CZ	IS
LU	RO	EE	CH
AT	MK	EL	
NO	UA	ES	
DK	HR	IT	
NL	LV	CY	
FI	LT	PT	
SE	HU	DE	
	MT	UK	
	PL	IE	
	SK	FR	
	RS	SI	
	TR	IL	

BE: Belgium; BG: Bulgaria; CZ: Czech Republic; DK: Denmark; DE: Germany; EE: Estonia; IE: Ireland; EL: Greece; ES: Spain; FR: France; HR: Croatia; IT: Italy; CY: Cyprus; LV: Latvia; LT: Lithuania; LU: Luxembourg; HU: Hungary; MT: Malta; NL: Netherlands; AT: Austria; PL: Poland; PT: Portugal; RO: Romania; SI: Slovenia; SK: Slovakia; FI: Finland; SE: Sweden; UK: United Kingdom; IS: Iceland; IL: Israel; MK: Former Yugoslav Republic of Macedonia; NO: Norway; RS: Serbia; CH: Switzerland; UA: Ukraine; TR: Turkey.

Table 2. Innovation Index 2016 vs Cluster analysis: 27 innovation indicators

For countries considered by the OECD as "Moderate Innovators", there is indeed a trend of similarity among most countries. However, through cluster analysis it is possible to divide the group proposed by the OECD (Group 4 of OECD) into two distinct groups (Group 2 and 3 of Cluster Analysis). In this case, the results presented suggest that Croatia, Latvia, Lithuania, Hungary, Malta, Poland, Slovakia, Serbia and Turkey present a larger set of similarities with the countries considered as "Modest Innovators". On the other hand, Czech Republic, Estonia, Greece, Spain, Italy, Cyprus and Portugal (Group 3 of Cluster Analysis) present more similarities with countries considered stronger in innovation. About the countries considered by the OECD as strong innovators or leaders in innovation (groups 1 and 2 respectively, OECD) as mentioned, there are several countries that present a higher level of similarity with "Moderate Innovators", as can be seen in group 3 (cluster analysis), that includes Germany and United Kingdom that are “Innovation leaders” and Ireland, France, Slovenia and Israel that are “Strong innovators”. As for the remaining countries, it is verified that group 1 (cluster analysis) is formed by 8 countries and group 4 (cluster analysis) by only 2 countries. These two groups highlight the degree of similarity between each group, both groups being composed of countries considered as “Strong innovators” and “Innovation leaders”. Since results obtained using cluster analysis, k-means (in order to group the 36 countries in k=4groups), and their comparison with OECD partition suggest that it is possible to consider the analysis not only the level of innovation of each of the groups of countries but also the similarity between them. In this way it is considered relevant to extend this analysis and comparison to the relationship that the four dimensions that structure the innovation index establish among themselves. In this sense, Tables 3 and 4 show the relationship between the four dimensions of innovation and how the four groups of countries are positioned in these relations.

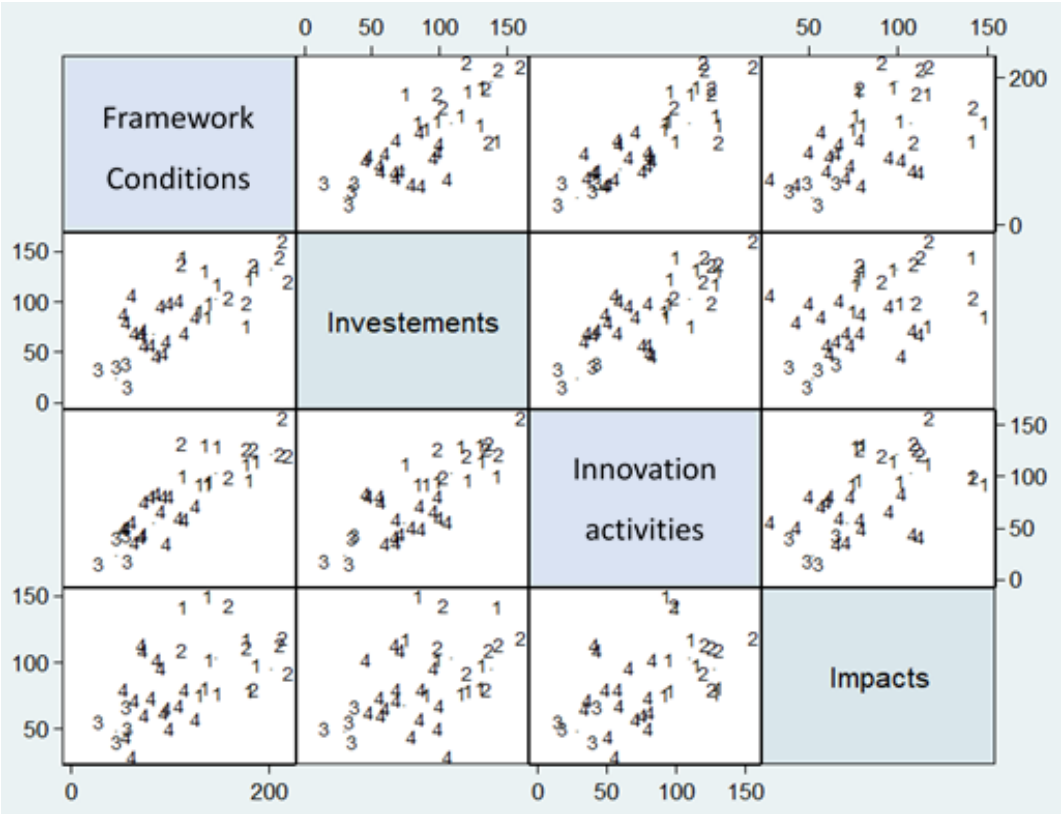

Table 3. Relation between the dimensions of the innovation index – groups of countries of OECD

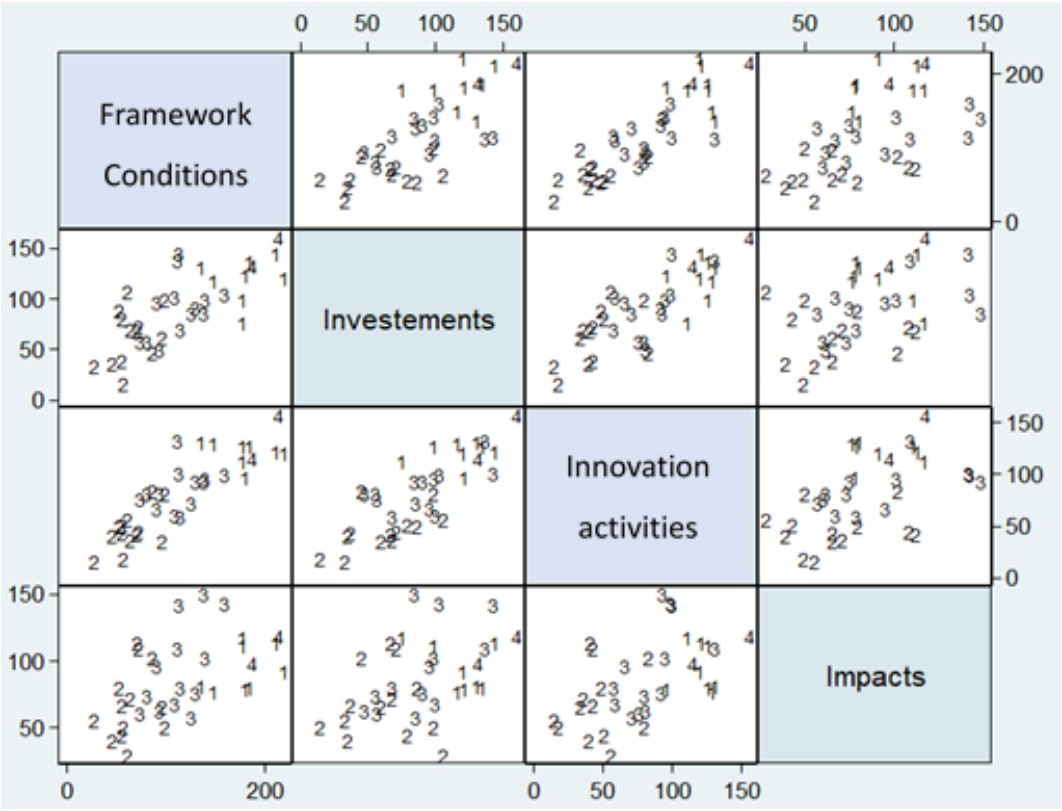

Table 4. Relation between the dimensions of the innovation index – groups of countries of Cluster Analysis

	Framework conditions	Investments	Innovation activities	Impacts
Group 1	0,1565	0,1854	0,0954	0,1857
Group 2	0,3149	0,4433	0,4389	0,4011
Group 3	0,2187	0,3218	0,2368	0,3542
Group 4	0,0934	0,138	0,2159	0,1302

Coefficient of Variation – groups obtained by *k*- means

	Framework conditions	Investments	Innovation activities	Impacts
Group 1	0,1722	0,2155	0,1432	0,2776
Group 2	0,2095	0,1742	0,1349	0,1829
Group 3	0,2975	0,3422	0,5062	0,2075
Group 4	0,2557	0,2594	0,2817	0,3235

Coefficient of Variation - OECD groups

Table 5. Coefficient of variation by group of countries, for each dimension of the innovation indicator

As ones understand, the groups in the partitions has not a direct correspondence between them, so analysing the coefficient of variation presented in Table 5 we conclude that the groups obtained by k-means are globally more homogeneous than the ones described by OECD on the four presented dimensions. An exception is remarked on groups 2 (obtained by *k*-means) and 3 (described by OECD), where in dimensions Framework conditions and Investments OECD "performs" slightly" better than k-means.

5. CONCLUSIONS

The goal of this work was attained. A different classification of the 36 countries presented by OECD, was obtained based on more sophisticated methodologies of multivariate data analysis. The Classifications are moderately correlated and the one developed and presented is more robust than the one by OECD. Ones can reflect on the approach to choose. Based on these results we intend to explore other approaches of classification trying to obtain more homogeneous groups. In this sense the obtained results suggest that it will be interesting analyse not only the countries classification by their capacity level and results about innovation, but also the similarities among them. That is, it may exist countries classified in different ways, such as strong or weak innovators there are significant similarities between the countries of the different groups proposed by the OECD. These results and the fact that we can analyse the degree of similarity between countries will allow us to conjecture how countries currently considered as innovators may evolve and approach countries considered to be stronger.

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INDEPENDENCE OF GOVERNANCE STRUCTURE IN STATE OWNED PORT AUTHORITIES - EXAMPLE OF CROATIA

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ABSTRACT

Due to large capacity of ships, maritime transport has always been a domain media for connecting the whole world. Nowadays, it is the most common form of transport and basis of global trade because of significant economic cost-effectiveness. Seaports are the main traffic junctions which are, at the same time, starting and ending point of every maritime voyage. Therefore, in this scientific article was carried research regarding the management model of seaports and its importance for all stakeholders including. There is no general management model for seaports in the world, neither in the EU. The term "port management" can mean two types of management models: 1) port management (port operations) in the broader sense and 2) port management as the port authority. The second one is in focus of this research. The port authority is mostly state-owned under the direct control of the responsible Ministry or under the local/regional administration. Only a small number of port authorities are privately owned. The basic tasks of the port authority are governance of the port and coordination of the activities of different operators/ concessionaires present in the port. The governance structure of the state-owned port authority is made up of the board of directors and director who is often placed under the political key, so the question is are they independent in port management and motivate for efficient port governance. The subject of this scientific article is to find on the sample of main seaports of the Republic of Croatia (the six state-owned seaports in the cities of Rijeka, Zadar, Šibenik, Split, Ploče and Dubrovnik), the impact of the independence of governance structure in the state owned port authorities on the port governance efficiency.
Keywords: *governance, independence, management model, port authority*

1. INTRODUCTION

The role of the port in the traffic system is significant because of its great potential and economic viability of shipping as the cheapest form of transport. In order to support the role of seaports in connecting the whole world, the states have recognized the importance of managing seaports for the whole national economies. Management of seaports is important not only for the owner, but also for the all stakeholders in the port area. Their goal is to be directly involved in the governance structure of the port authority as a body that manages the ports. Considering global changes, growing competition and need for sustainable development, the reform of the seaport management model is in process. Some countries, such the United Kingdom, Australia

and New Zealand, had done radical reforms, which was leading to the full privatization of ports. Global institutions like the World Bank, have promoted a more balanced reform that attracts private providers under the supervision of a state owned port authority. This port authority is often commercialized or corporatized (World Bank, 2010). Corporatization is the most common form of reform of management model, which aims is adopting corporate governance principles in order to improve cost control, return on investment, business transparency and governance structure independence. Public ownership of a port authority is not a limitation to effective operations (Notteboom and Winkelmans 2001), but the relationship between the port authority and the owner (state) can be complicated by conflicting goals of each sides. The influence of the port authorities in public ownership can hardly be avoided, even if port administration is corporate (Grosdidier de Matons 1997, Notteboom and Winkelmans 2001) especially in issues of election of supervisory board, management and strategic business development. The question is how much political control disrupts the efficiency of the port management model, especially how many governance structures in state owned port authorities remain independent in their decisions and motivated to manage the port effectively.

2. PORT MANAGMENT MODEL

There is no unique model for seaports in the world and even in the EU. The term "port management" can mean two management models: 1) port management (port operations) in the broader sense; and 2) port management over the port authority. The first refers to the cluster of social, public and economic subjects and politics, while others imply the management of the seaport on the principles of corporate governance[1]. The World Bank (2007) analysed the administrative management model and depending on whether they have public, private or mixed service offerings, local, regional or global orientation, ownership of infrastructure, superstructure and equipment, the status of the labour force, they have created four (4) basic port management models:

1. Service port,
2. Tool port,
3. Landlord Port and
4. Private port.

Table 1 shows the most common options for transferring functions from the public to the private sector in port

Table 1: Sectors (public or private) and their different responsibilities in four basic port management models, Source: World bank (Module 1, 2007)

	Administration	Infrastructure	Suprastructure	Labor	Cargo management	Other functions
Service port	Public	Public	Public	Public	Public	Majority public
Tool luka	Public	Public	Public	Private	Private	Public/Private
Landlord port	Public	Public	Private	Private	Private	Public/Private
Private port	Private	Private	Private	Private	Private	Majority private

[1] Principles are intended to help policy makers evaluate and improve the legal, regulatory, and institutional framework for corporate governance, with a view to support economic efficiency, sustainable growth and financial stability (OECD, 2015)

Verhoven and Vanoutrive (2012) in their research based on the data from the survey of the European Maritime Organization in 2010 entitled 'Finding Facts' which takes into account the evolution of ports as well as a new perspective of the role of port authorities, have recognized elements that could explain the diversity of European seaports management. The results obtained through the factor analysis confirmed the existence of different types of port management models in Europe, which correspond to the hypothetical typology of three basic types: conservator, facilitator or entrepreneur. The differences in port governance are also related to the geographical characteristics, so we have:

1) Hanse model (countries of Scandinavia Norway, Denmark, Sweden, Finland, Island, Germany, the Netherlands and Belgium),
2) New Hanse model (Estonia, Lithuania, Latvia and Poland),
3) Anglo-Saxon model (United Kingdom and Ireland),
4) Latin model (France, Portugal, Spain, Malta, Italy, Greece, Cyprus and Israel) and
5) New Latin model (Slovenia, Croatia, Bulgaria and Romania).

The Hanse and New Hanse model represents a traditional model of local government, mostly ports are owned by cities. The Anglo-Saxon model of independent governance is characteristic of ports in the United Kingdom and Ireland, where private property is dominated. The Latin and New Latin model of port management is characteristic for the European part of the Mediterranean. It is a centralized system in which the role of the state is dominated in port governance.

2.1. Goverance structure in port managment model

The governing structure is often consisted of the governing council (or the supervisory boards) and management and depending on the administrative model of management. At the Service port, all port functions are assigned to the public sector. This model is directly controlled (or even part of) by the Ministry of Transport. The president of the port authority is usually a civil servant and is directly accountable to the Minister. At the Tool port, the governance structure of the port authority is the same as at the Service port. The main characteristic of the Landlord port is a mix of public and private interests, and today it is the most commonly used model for large and medium-sized ports. In this model, the port authority owns the basic infrastructure, land and retains all regulatory functions while leases land to port operators, normally through long-term concession. The governing structure is divided and through the corporate form of the organization it strives to meet the interests of all the stakeholders involved in the port operations. Usually in this model, ports are managed by joint stock companies according to the Company Law. The fully privatized port represents the latest management model in which the state has no the interest to participate in the port sector.

2.2. Stakeholders' participation in port governance

Empirical research has confirmed that larger ports in Europe and around the world are mostly "landlord port" model or are developing in that direction (Cabrera et al 2014, Ferrari and Musso 2011, Marques and Luz 2009, Verhoeven 2006, ESPO 2010), because this model has best achieved the interests of all stakeholders in the port. Actually, alignment of public and private interests determines the governance structure of the port. Looking at the institutional framework, on one side there is full of public control over planning, regulation and activities in service port and on the other side there is the privatized port. In order to harmonize public and private interests, the role of the public sector is reduced so we have spread of the landlord model. On the other hand, maximizing profits is not the only and/or key goal because of the public function of port authority. Port management model needs to take care of the interests of

all stakeholders, doing socially responsible business as one of the principles of corporate governance. Port Stakeholders are shown in Chart 1:

Chart 1. Port Stakeholders, Source: Port security investments: who benefits and who bears the cost? Barbullushi, 2010

Corporate governance harmonizes the interests of the owner(s) with the interests of other interest groups including port service users and ensures that the organization (in this case seaport) operates in accordance with best practices and accepted ethical standards. One of the basic principles of corporate governance is the independence of governance structures.

3. INDEPENDENCE OF GOVERNANCE STRUCTURE IN PORT AUTHORITY

Governance structure members have to use their knowledge, competence, and expertise to influence on effective port management. The members of governing council or the supervisory boards of port authorities should be independent and objective. The independence is the main feature of all members of the governance structure. According to corporate governance there are three levels of independences: one member's independence on another member, corporate independence and independence of management[2]. Recommendation of the European Commission (2005) emphasizes the independence of the members of the supervisory board and board of directors, which is also applicable to port governance structures: The presence of independent representatives on the board, capable of challenging the decisions of management, is widely considered as a means of protecting the interests of shareholders and other stakeholders. In companies with a dispersed ownership, the primary concern is how to make managers accountable to weak shareholders. In companies with controlling shareholders, the focus is more on how to make sure that the company will be run in a way that sufficiently takes into account the interests of minority shareholders. Ensuring adequate protection for third parties is relevant in both cases. Whatever the formal board structure of a company, the management function should therefore be subject to an effective and sufficiently independent supervisory function. Independence should be understood as the absence of any material conflict of interest; in this context, proper attention should be paid namely to any threats which might arise from the fact that a representative on the board has close ties with a competitor of

[2] Tipurić et al. Korporativno upravljanje (2008)

the company (Commission recommendation, 2005). Therefore, this study puts the focus on the opinion of members of governance structure in state owned port authorities in Croatia about their independency in port management and motivate for efficient port governance.

4. GOVERNANCE STRUCTURE IN STATE OWNED PORT AUTHORITIES - EXAMPLE OF CROATIA

Port authority is a non-profit legal person whose establishing, organization and activities are regulated by Maritime Domain and Seaports Act. The founder of the Port Authority is the Republic of Croatia, and the founding rights on behalf of the Republic of Croatia are done by the Government of the Republic of Croatia. The Government of the Republic of Croatia has established six state-owned port authorities - PA Rijeka, PA Zadar, PA Šibenik, PA Split, PA Dubrovnik and PA Ploče for manage and construct ports of special international and economic interest for the Republic of Croatia**.** Their governing structure consists of Governing council and director. The Governing council are consists of:

1. four representatives of the Government of the Republic of Croatia, one of whom is from Harbor master office,
2. one representative of the county on whose territory is the port authority,
3. one representative of the city or municipality on whose territory is the port authority,
4. one representative of all concessionaires who carry out activities in the port area.

The mandate of members of the Governing council is four years and the same person may be re-appointed. The President of the Governing council of the Port authority is appointed by the Government of the Republic of Croatia. The director is responsible for his work to the Governing council, the Minister and the Government of the Republic of Croatia. The director is appointed on the basis of a public tender and dismissed by the Governing council with the prior consent of the Minister. The director has to fulfill all conditions stipulated by the Port's statute. The mandate of the director is four years. The procedure of appointing the director is stipulated by the Statute of the Port authority.

5. EMPIRICAL RESEARCH

5.1. Survey and characteristics of respondents

In order to determine the independence of the governance structure, the questionnaire was conducting on a sample of six state-owned ports of international interest for the Republic of Croatia. The questionnaire was sent electronically to presidents and members of the Governing council, directors, assistant directors and directors of sector, total of 80 survey respondents. The feedback was 50 respondents, which makes 62.5% of the questionnaires received. Since all questionnaires received did not meet the criteria for processing because they were not complete or properly filled up, 25 questionnaires were used for the purposes of research. Below are the data related to the basic characteristics of the respondents. According to data from Chart 2., the majority of the respondents (48%) are members of the Governing council.

Figure following on the next page

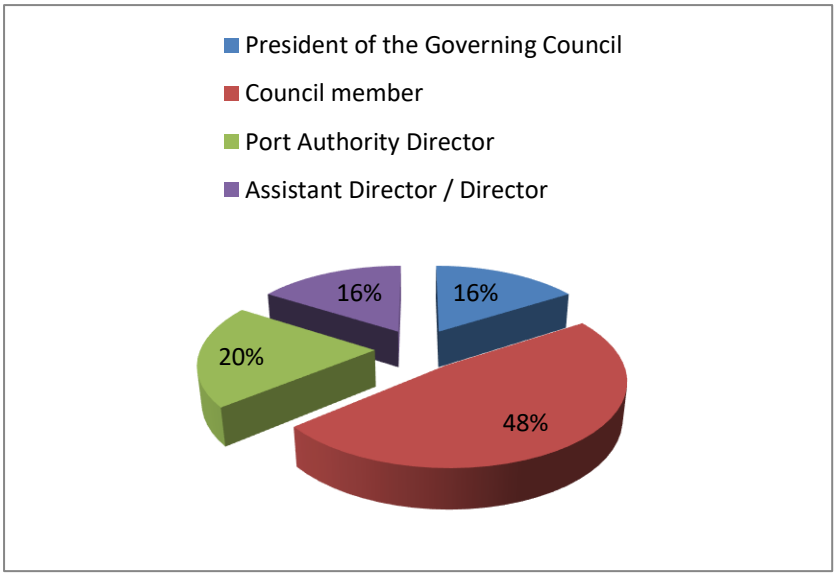

Chart 2. Characteristics of the respondents - function in the governance structure

Also, the majority of respondents (64%) represent the majority owner or the state (Chart 2.)

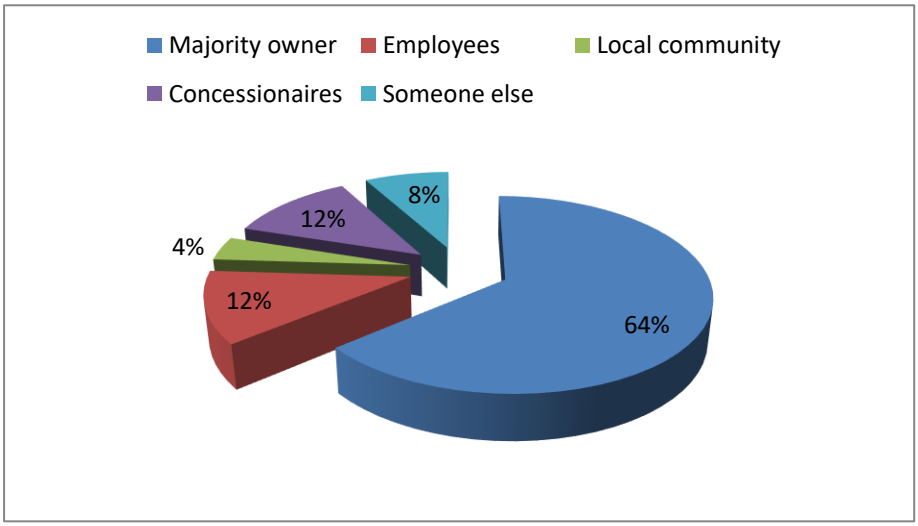

Chart 3. Characteristics of the respondents – whom represents in the governance structure

Among the surveyed members of the Governing Council all receive a monthly fee in the amount of 2,000 kuna which is the same amount of compensation for work in the company's supervisory board. One of the important factors that point to the independence of the governing structures is the effort and engagement of the members of the Governing council. We have investigated how much times the members spend monthly for the work in the council, prepare for the session of the council and how long the session lasts.

Table following on the next page

Table 2. Characteristics of the respondents - how much time takes the GC work

Hours / month	Frequency	Answered %
2	1	4,0
4	5	20,0
5	2	8,0
6	2	8,0
10	6	24,0
15	4	16,0
16	1	4,0
20	2	8,0
24	2	8,0
Total	**25**	**100,0**

The majority of respondents (24%) spend 10 hours per month for the work in the council. Interestingly, there are a huge number of respondents who spend more than 15 hours on the work, them 36%, so we can conclude that members of the council invest their efforts and time in the work of the council. Table 3. shows how many sessions the Governing council holds in a year.

Table 4: Number of sessions in a year

Number of sessions	Frequency	Answered %
4	1	4
5	1	4
6	5	20
7	2	8
8	5	20
10	4	16
12	4	16
15	1	4
17	1	4
18	1	4
Total	**25**	**100,0**

The sessions usually last between one hour and two, or two to three hours, and rarely last for more than three hours (Chart 3).

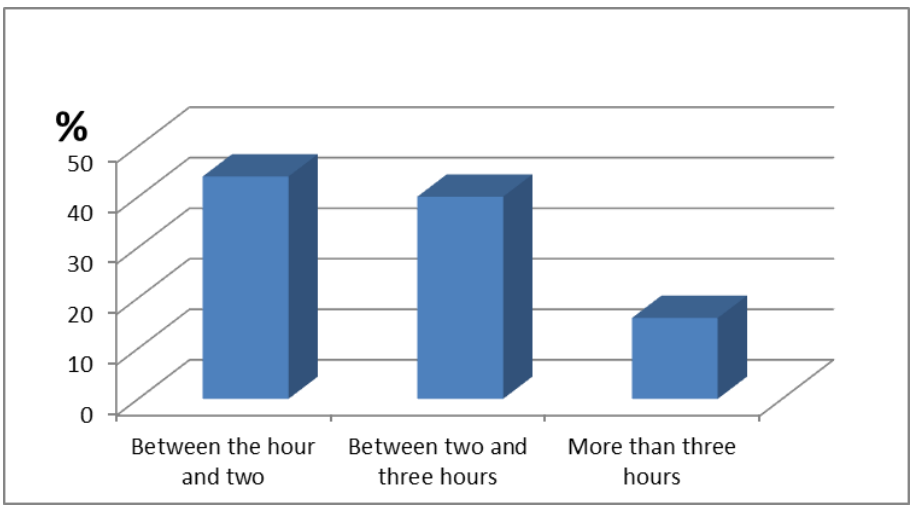

Chart 3. Average duration of the session of the Governing Council

5.2. Descriptive statistics

Respondents were choosing the offered numerical values (1 - strongly disagree, 2 - disagree, 3 – not disagree or agree, 4 - agree, 5 - completely agree) to express their degree with the next nine claims:

Table 5: Attitudes of respondents

	strongly disagree	(%)	disagree	(%)	not disagree or agree	(%)	agree	(%)	completely agree	(%)
At the sessions of are present mostly all GC members	0	0	0	0	3	12	16	64	6	24
There is a high level of commitment of GC members to improve port management	0	0	2	8	9	36	10	40	4	16
GC members makes all decisions unanimously	1	4	10	40	6	24	5	20	3	12
There is a high degree of mutual trust among GC members	0	0	6	24	10	40	7	28	2	8
The GC president often puts his opinions and beliefs on other GC members	3	12	10	40	10	40	1	4	1	4
GC members protect the interests of the interest groups they represent	1	4	2	8	9	36	12	48	1	4
GC members advocate their attitudes even if they are in opposition to the GC president	0	0	3	12	9	36	12	48	1	4
The choice of Port authority director is objective and independent	6	24	2	8	10	40	5	20	2	8
GC members cooperates effectively with the management of the port authority	0	0	1	4	7	28	13	52	4	16

Based on the attitudes of the respondents, it is possible to conclude that at sessions of the GC mostly of the members are present and they are committed to the goal of improvement of port management (40% agree and 16% fully agree with this statement). However, most of them disagree (40%) or remain unspecified (24% not disagree or agree) that the GC unanimously makes decisions. In the question of whether there is a high trust among members of the GC, the respondents are divided: 24% agree with that statement, 28% disagree and the most are those who not disagree or agree (40%). Most of them disagree (40% disagree and 12% strongly disagree) with the statement that the president of GC imposes their opinions and beliefs to other members but a good part of the respondent is undecided (40% not disagree or agree). Also, most of the respondents (52%) agree with the statement that GC members protect the interests of interest groups they represent, and advocate their attitudes even if they are in opposition to the GC president (52%). With the statement that the choice of the Port authority director is objective and independent, less than one third of the respondents agree (28%), and most of them remain unspecified (40%). Finally, more than two-thirds of respondents consider (52% agree and 16% strongly agree) that GC works effectively with the management of the port authority. For interpret easier, the unspecified answers are classified into the disagree-response group (blue part of the table). We can conclude that the Governing council work on an independent basis where each member represents the interests of their interest groups. What is not independent is the choice of the director of the port authority, although he is selected through public tender, but never without the politics.

6. CONSLUSION

All interest groups: owner (state), employees, local community and concessionaires (operators) should have their representatives in the governance structures - Governing council (or supervisory board) and management of the port authorities, in order to protect their interests. With the involvement of all stakeholders in the governance structure, the corporatization of Port authority is achieved. Port management model on the principles of corporate governance means more transparent and independent business and therefore more efficient. Reform of port carried out in some EU countries show that port authoritys after corporatization have more efficient business. One of the basic principles of corporate governance is the independence of governance structures in decision-making and motivation for successful business operations. Research has shown that in state-owned port authority in the Governing council where all the stakeholders are represented, they act more independently than in management whose choice is directly influenced by the state. Consequently, the recommendation is when choosing a director, it is a good idea to give an advantage to the profession and management experience.

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DETERMINANTS OF BANK SELECTION USED BY START-UPS IN POLAND - WHY IS CREDIT RATING NOT THE MAIN CRITERION USED BY THE CLIENTS WHEN SELECTING A BANK?

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ABSTRACT

This article analyses determinants of bank selection used by start-ups in Poland, on the basis of 200 enterprises. The aim of this paper is to explain the reason why banking customers pay increasingly less attention to the economic and financial standing of the banks they entrust their savings to. Nowadays, determinants of bank selection typically include the cost of bank charges and commission, a network of free ATMs, attractive range of banking products and services, professionalism of bank staff as well as interest on deposits, loans and credits. The outcome of the two serious global financial crises, i.e. the crisis caused by subprime mortgages and the one connected with the debt of eurozone countries clearly showed that banks are no longer perceived as public trust institutions. It should be therefore reconsidered whether the absolute faith in supervisory institutions, deposit guarantee schemes and the necessity for central banks and governments to apply aid systems in order to save banking sectors, are rational in the light of the decisions made by the customers when choosing a bank.

Keywords: *Banking sector, Public trust institutions, Credit rating*

1. INTRODUCTION

The essence of banking activity is trust of banking customers. These are likely to deposit their funds in a bank when they trust that the bank statement or electronic document they receive is a sufficient guarantee for them to collect their deposits with the interest they have earned. Trust concerns business relations based on a conviction that both partners are honest. Meanwhile, the examples of the most spectacular abuse committed by renowned banks in recent years, including money laundering, doing business with countries subject to international sanctions, manipulating the EURIBOR and LIBOR rates, participating in organised tax fraud, manipulating market currency exchange rates, preparing incorrect financial reports, unauthorised actions by brokers, unauthorised influence upon the prices of derivative instruments, manipulating toxic mortgage credits, establishing fictitious customer accounts, leaking confidential information concerning trading in the financial markets and market research, etc., have shown a clear decline of their ethos as public trust institutions. In result, there appeared opinions questioning the widely held view that the specific character of banks and their role in the economy allow us to treat them not only as corporations focused on maximising the shareholders' gains but also as public trust institutions.

2. LITERATURE REVIEW

A highly abstract theorem of welfare economy which holds that in the conditions of ideal competition, where all the prices of manufactured goods are equal to final costs, prices of all production factors are equal to the final product value, while there are no external effects and the market mechanism ensures effective allocation – cannot be adequately substantiated in reality.

The theory of market economy is based on the assumption that effective allocation of resources is possible thanks to the maximisation of expected investor utility. Already in 1738, D. Bernoulli claimed that „product value should not be established on the basis of its price but on the basis of utility it involves« (Bernoulli, 1954, p. 24). According to the theory of expected

utility formulated by J. von Neumann and O. Morgenstern, fully rational individuals making decisions in the conditions of risk – on the basis of all information available – will choose a solution which will ensure maximum expected utility (von Neumann, Morgenstern, 2007, pp. 617-632). Although the function of utility is a psychological concept which depends on the level of satisfaction, individual to each consumer, it can be pinned down to a range of optimum decision-based solutions related to the choice of bank and resource allocation in a way which will associate client's advantage with the necessary degree of security. This model was modified by D. Kahneman and A. Tversky. Expanding the previous concept of H. Simon who claimed that an individual is not able to take fully rational action due to time and technological limitations (Simon, 1955, pp. 99-118), they noticed that rationality was being limited under the influence of time pressure and complexity of information (Tversky, Kahneman, 1974, pp. 1124-1131). Therefore, it may prove largely inadequate to explain clients' preferences when choosing a bank, and then their loyalty, on the sole basis of the fundamental assumptions of consumer behaviour theory, such as:

- consumers manifest certain needs and are able to define them,
- consumers are able to prioritise their needs – from the least to the most intensively felt needs,
- an individual makes choices in order to maximise their own satisfaction, might not be sufficient (Coto-Millán, 2003, pp. 7-23).

The studies aimed at identifying bank selection criteria used by the clients was carried out mostly in developing countries. Its results are shown in Table 1.

Table following on the next page

Table 1: Selected studies of bank selection criteria (original research)

Author	Research area	Main determinants
E. Hari Prasad Sharma, G.V. Bhavani Prasad	India	- qualitative services, - prompt services provided by bank, - place of the bank branch
Misbah Sadiq, Saif Ur Rehman Khan, Muhammad Abdur Rub Khan	Malaysia	- service quality, - convenient, - cost, - personnel, - easy process and variety of product, - communication technology, - people influence
Omo Aregbeyen	Nigeria	- safety of funds, - quick/prompt service, - minimum waiting time, - good complaint handling, - reputation/dependability
Salih Turan Katircioglu, Mustafa Tumer, Ceyhun Kılınç	Romania	- counter partition in bank, - confidentiality of the bank, - gifts for opening a new account, - branch office facilities
Noez Ltifi, Lubica Hikkerova, Boualem Aliouat, Jameleddine Gharbi	Tunisia	- quality of service, - trust, - compliance with Sharia law
Hameedah Sayani, Hela Miniaoui	United Arab Emirates	- Shariah advisory, - similarity with Convbut Halal, - religion, - profit and religion, - relatives
Charles Blankson, Julian Ming-Sung Cheng, Nancy Spears	USA	- accessibility to my money, - security, - convenient location, - good customer service, - convenience, - free checking account
	Taiwan	- security, - reputation of organization, - accessibility to my money, - convenient location, - good customer service
	Ghana	- good customer service, - quick service, - security, - competence, - good service provision

As it can be seen, bank selection criteria vary depending on the research location – its development level, regulatory and market discipline, religion, cultural context, consumers' preferences and purchasing power, demographic structure, etc.

3. METHODOLOGY

The aim of this study was to find out about clients' preferences with regard to determinants of bank selection. The sample comprised 200 respondents who represented start-ups set up in Poland. According to the definition of S. Blank: „Your startup is essentially an organization built to search for a repeatable and scalable business model" (Blank, Dorf, 2012, p. xvii). A different terminology is presented by E. Ries for whom it is „A human institution designed to create new products and services under conditions of extreme uncertainty" (Ries, 2011, p. 8). Start-ups are usually enterprises created by young people, with a short history, which are developing and looking for partners to cooperate with, also in the banking services sector. For the purposes of this study, it was assumed that a start-up is a new enterprise, which has no experience and starts to implement its innovative business ideas. The main condition the respondents had to meet was – on the one hand – a relatively short period of business activity, i.e. up to 2 years, and – on the other hand – the condition of no dividends or other funds paid out to the company owners, which would diminish equity capital. All the respondents represented microenterprises, as defined in Annex I to Commission Regulation (EC) No. 800/2018 of 6 August 2008, i.e.

- enterprises employing fewer than 10 persons,
  - whose annual turnover and/or annual balance sheet total does not exceed EUR 2 million.

  In the case of start-ups being legal persons, the answers were provided by their owners, partners or shareholders as well as Board members and directors. Thanks to the direct contact with the respondents, the results obtained were fully credible and errors caused by misunderstanding questions or answers could be avoided.

The survey was carried out in 2018. The statistical method applied was structured interview, based on a standardised list of questions which were addressed in the same way to all the respondents. The structured interview used qualitative closed-ended questions.

4. RESULTS AND DISCUSSION

The survey results have clearly demonstrated that the most important determinant of bank selection among the respondents is the cost of bank charges and commissions (Table 2).

Table following on the next page

Table 2: Determinants of bank selection (original research)

Rank	Specification	Mean	Standard Error
1	price/cost of bank charges and commissions	4.71	0.58
2	network of free ATMs	4.29	0.88
3	attractive range of banking products and services	4.15	0.80
4	professionalism of bank's staff	4.10	0.82
5	interest on deposits and loans/credits	3.93	1.22
6	financial standing of a bank/ credit rating	3.80	0.95
7	bank's reputation	3.75	1.00
8	quality of customer service	3.69	0.83
9	high quality of mobile applications	3.64	1.10
10	innovative banking products and services	3.56	0.85
11	convenient opening time of bank branches	3.39	0.80
12	procedures to obtain credits and loans	3.22	1.17
13	quick service / short waiting time	3.20	1.04
14	recommendation from family / friends	3.19	1.03
15	number of bank branches	3.08	1.01
16	bank ranking on Internet portals / in press	2.93	0.86
17	branch located close to place of residence / place of work	2.78	1.12
18	additional services – concierge, club packages, discount programmes, bank gadgets	2.34	1.10
19	location – car park, comfortable customer service conditions, access for the disabled	2.32	0.89
20	nationality of major shareholders	2.10	1.07
21	acquaintance with bank's staff	2.07	1.02
22	bank advertising	2.03	1.01

Interestingly, the respondents rated the »financial standing of a bank/credit rating» only as a sixth bank selection determinant. Global financial crises: the first caused by *subprime* mortgages and the second one connected with the debt of eurozone countries severely damaged the ethos of banks as institutions of public trust in European countries. Banks have become powerful financial conglomerates whose operation is increasingly less aimed at financing the real sphere. Although it is evident that banks as financial market entities operate according to the logic of market economy and try to allocate their capital so as to obtain maximum return on the capital invested by their shareholders, their evolution towards investment banking gave rise to significant economic and financial problems for many banks. Pressure exerted by the investors, ambition to reach long-term competitive advantage and individual managers' motivation contributed to higher risks the banks are exposed to. Unsurprisingly, different Member States had to take individual interventions in order to save banks likely to fail, whose compliance with European competition policies and rules of public aid application was often controversial, to say the least. (Table 3).

Table following on the next page

Table 3: Value of public aid for the financial sector in chosen European countries in the years 2008-2016 [EUR billion] (European Commission)

Country	Aid used in the years 2008-2016				
	Recapitalisations	Impaired asset measures	Guarantees	Other liquidity measures	Total
Austria	11.8	0.5	19,3	0,0	31,6
Belgium	20.8	21.8	46.8	0.0	89.4
Croatia	0.0	0.0	0.0	0.0	0.0
Denmark	10.8	0.3	145.0	2.0	158.1
France	25.0	1.2	92.7	0.0	118.9
Germany	64.2	80.0	135.0	4.7	283.9
Greece	46.7	0.0	62.3	6.9	115.9
Ireland	62.8	2.6	284.3	0.9	350.6
Italy[1]	11.5	0.3	85.7	0.0	97.5
Netherlands	23.0	5.0	40.9	30.4	99.3
Poland	0.0	0.1	0.0	0.0	0.1
Portugal	14.5	3.2	16.6	3.8	38.1
Spain	61.9	32.9	72.0	19.3	186.1
United Kingdom	100.1	40.4	158.2	33.3	332.0
					1 901.5

[1] *Italian banks obtained significant assistance in the year 2017 as well.*

The significant scale of aid supplied to the banking sectors provides an explanation for the results of the survey. Unlike banking sectors in developed countries, banks operating in Poland did not require considerable aid. Meanwhile, nowadays it is no longer possible to save a systemically important bank without generating some social impact, and mostly without financial contribution coming from the very tax payers. There is also a purely ethical aspect whether the taxpayers' money should be used to finance risky operations of the banks? It is evident that in principle no-one bore the consequences for the contemporary crises (both among the bank managers and among representatives of supervisory institutions, rating agencies, audit companies, etc.). Lack of public approval for the risky operations, enormous costs of severance paid to the board members responsible for the situation which occurred not only increased the level of dissatisfaction caused by the necessity to save banks likely to fail with public money, but also tarnished reputation of the banks as public trust institutions. Therefore, why do the respondents not consider economic and financial standing of the bank as one of the most important bank selection determinants? As it seems, it is mostly connected with trust in the banking sector and supervisory institutions in Poland (cfr. Fungáočvá, Hasan, Weill, 2017, pp. 1-25) but it is also a result of action taken by the public authorities and by the central bank aimed at restoring trust in the financial markets and banks themselves. Relatively high resistance of the Polish banking sector as compared with other European countries during the crises was due to:

- banks not being engaged in high-risk investment projects,
- large and diversified internal market,
- large-scale investment (also engaging European funds) in the Polish economy,
- possibility to use central bank instruments in the banking sector.

The fundamental source of trust in the banking sector is a security system created to ensure safety of its operation. Deposits kept in bank accounts by our respondents, who represent

entities conducting economic activity, are protected by deposit guarantee scheme. Legal regulations adopted in the Polish Act on the Bank Guarantee Fund, Deposit Guarantee Scheme and Resolution of 10 June 2016 meet the requirements of Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014 on deposit guarantee schemes. The level of depositor protection is therefore standardized, similarly as in the European Union. Deposits which do not exceed an equivalent of 100.000 euro are fully guaranteed. Thanks to the fact that the guaranteed deposits have to be paid out within 7 business days from the moment guarantee conditions are met, depositors' fears as for possible loss of their deposits subsided and concerns over potential lack of liquidity lessened. Another positive factor which could influence the respondents' choice is a fact that for a long time no commercial bank has collapsed in the Polish banking sector. The last such incident took place in 2001. Although over the recent years some cooperative banks have failed, their rules of operation are from those of commercial banks. Owing to the complementary character and substitutability of the three main pillars of operational security of banks in Poland: regulatory discipline, market discipline and corporate supervision, businesses pay less attention to credit ratings of the banks they cooperate with. Trust in the ratings published by the three largest rating agencies was breached by a series of controversial decisions with regard to some ratings which did not reflect the actual economic and financial standing of issuers or financial instruments. The most spectacular discussions concerned:

- approving by Standard & Poor's, Moody's and Fitch Ratings of high rating on structured financial instruments (in particular Collateralised Debt Obligation – CDO, secured by asset portfolio – subprime mortgages issued in the US), whose market prices were considerably inflated, which contributed to the global financial crisis in 2007-2009,
- maintaining by all the three agencies high ratings of debt and financial instruments of Lehman Brothers just a few days before the bank filed for insolvency on 15 September 2008,
- considerable lowering of Bear Stearns bank rating by Standard & Poor's just before J.P. Morgan announced its decision to take over the failing bank.

It has to note, however, that according to the rating agencies themselves, credit ratings are only opinions issued on the basis of adopted criteria and methodologies, which are systematically monitored and updated. They should therefore be treated as forecasts and should not be interpreted as an expression of statistical probability of insolvency of the rated entity or its financial instruments. Unsurprisingly, the tarnished reputational risk of the agencies made our respondents – contrary to international investors – rely more on the national system of supervision and monitoring of the banking sector rather than on the credit ratings.

5. CONCLUSION

Trust of economic entities placed in the banking sector is a pillar of every economy. Our study has shown that start-ups in Poland place relatively high trust in the banking sector. It is quite symptomatic that the main bank selection determinants are now: the cost of charges and commissions, a network of free ATMs, attractive banking products and services, professionalism of bank's staff and interest on deposits and credits. Sense of security connected with economic and financial standing of the bank ranks only second. It should bear in mind, however, that the main security pillars of banks' operation, i.e. regulatory discipline, market discipline and corporate supervision will not totally eliminate the threats connected with negative impact of supply and demand shocks. Banking sectors are waiting for new challenges connected with the changing environment of credit institutions operating in the united Europe.

Choice of bank will therefore always remain a rational compromise between ensuring the best customer service conditions on the one hand, and on the other hand – the necessary security margin.

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INFLUENCE OF ICT ON THE LABOUR MARKET IN POLAND

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ABSTRACT

*The development of technologies has been changing the nature of labour all over the world. However, a very important issue is the ability of using those technologies by employees. The article presents trends on the labour market**,** selected programmes supporting the progress of revolution 4.0 in Poland, and findings of research among companies in Poland. The article aims at identifying those aspects that enable employees and companies in Poland to adjust to the ever changing labour market subjected to the rapid development of technologies. The article defines the following research hypothesis: Increasing competences of the society as regards the use of information and communication technologies should enable to adjust to the ever changing labour market.*

Keywords: *digital competences, ICT, labor market*

1. INTRODUCTION

A rapid development of information techniques and technologies is the foundation of growth not only in the ICT sector, but it also has its influence on the entire economy and, consequently, the society. Information and Communication Technologies (ICT) play a key role in the contemporary process of economic transformation. ICTs develop rapidly significantly changing the activity of companies in the evolving economy. This includes jobs and form of work, as well as relations between employers and employees. According to figures publicised by Eurostat, in 2016, 8.2 million people in the EU worked in the ICT sector. Almost a half of European specialists concentrate in three member states, namely Great Britain (1.6 million), Germany (1.5 million) and France (1 million). In the recent five years, the number of people working in the sector increased by 1.8 million. Finland has the largest number of ICT specialists comparing with the total employment (6.6%), whereas Poland is ranked 21st (2.7%). The main goal of the article is to present the significance of the digital revolution for the operation of companies and the labour market. The article aims at identifying those aspects that enable employees and companies in Poland to adjust to the ever changing labour market subjected to the rapid development of technologies. The article defines the following research hypothesis: Increasing competences of the society as regards the use of information and communication technologies should enable to adjust to the ever changing labour market. The development of technologies has been changing the nature of labour all over the world. However, a very important issue is the ability of using those technologies by employees. The article presents trends on the labour market**,** selected programmes supporting the progress of revolution 4.0 in Poland, and findings of research among companies in Poland.

2. THE IDEA OF THE DIGITAL REVOLUTION

The third revolution took place in 1970s. We have referred to it as the science and technology revolution, since it involved the development of high-tech industry and digitalisation of production. It followed the first[1] and the second[2] industrial revolutions.

[1] The first industrial revolution was a process of technological, economic, social and cultural changes initiated in the 18th c. It was a change from an agrarian and handicraft economy to one dominated by industry and machine manufacturing at a large scale.

[2] The second industrial revolution occurred in the mid 19th c. and early 20th c. It was the result of a rapid development of science and technology accompanied by new technological inventions.

Alongside to technological innovation, the organization structure of industrial production has undergone several major shifts in the past to face changing markets (Brettel, Friederichsen, Keller, Rosenberg, 2014, 37). Today[3], Industry 4.0 is yet another revolution involving technological innovation and value chain organisation concepts that revolutionise industrial production. Its most vivid feature is the decay of a barrier between people and machines, and common use of the Internet of Things and cloud processing. Industry 4.0 integrates systems and creates networks. It integrates people with digitally controlled machines while using the Internet and information technologies, or the unification of the realm of machines and the virtual world of the Internet (also Internet of Things) and information technology. The fourth industrial revolution focuses on information and ultimately the access to any information at any time and from every place. It translates into the possibility of producing customised products and short production series. This provides companies using Industry 4.0 previously inaccessible flexibility in adjusting their operation to the expectations of their customers. 'Industry 4.0 is a collective term used to describe technological solutions and concepts related to the organisation of the value chain. In modular smart plants, cyber-physical systems (CPS) monitor physical processes, create virtual copies of the physical world and make decentralised decisions. While using the Internet of Things, CPSs communicate and cooperate between each other and people in real-time. Parties involved in the value chain offer and use external and inter-organisational services through the Internet (Hermann, Pentek, Otto, 2015). Different stages in the development of the digital economy brought the proliferation of new 'economies', e.g. sharing economy (Budziewicz-Guźlecka, 2017, p. 27-36) and wikinomy. In this particular context, we should also mention not only ICT specialists but also the new role of an amateur whose passion and dedication bring their knowledge to such a level that they play an active role in improving products made by 'professional' companies. Frequently, they do it for free to strengthen their reputation in the community (*reputation economy*) and the latter may also lead them to further professional carrier (Stebbins, 2014).

3. TRENDS ON THE INFORMATION SOCIETY LABOUR MARKET

Andreu Mas-Colell (Mas-Colell, 2014, p. 148-149), refers to probable changes in the basic organisation of labour:

1. The term 'working time' will cease to exist and 'everyday work' or 'annual work', as well as 'work place' will transform significantly. Communication technologies enable flexibility of working time and the comfort of having no rigid schedules is invaluable. The discussion that takes place in some countries regarding employee and family duties mark the growing and unstoppable trend.
2. The growing role of self-employment will progress in parallel to the transformation of traditional companies towards diminishing difference between a conventional employment contract and contract for services. In the future, on the one hand we are going to have civil servants (with traditional employment contracts), and on the other independent labourers with an elaborate network of contacts.
3. Work should become more interesting than just repeated routine duties that could be automated. Although the automation cost is decreasing and the possibility of shortening the regular working day, this should not be a prevailing trend. At the same time, motivation related to promotion and success will still remain strong encouraging people to put more effort and spend their time at work.

[3] The term of Industrie 4.0 was first used in 2011 during the Hanover Trade Fair.

Demographic trends (migration and demographics) facing the rapidly growing sector of services[4] will necessitate measures designed to make current traditional employment forms more flexible. This should promote remote work, loose and self-organising teams that to a large extent resort to freelancers' knowledge. Those changes are going to bring wider use of robots, machine learning and automation of repeatable business processes. Thus, human resources will be freed to implement creative activities supporting sustainable development and social inclusion that guarantees improved quality of living. Neither technology nor the disruption that comes with it is an exogenous force over which humans have no control (Schwab, 2017). Digitization of the economy, in particular the development of the economy on demand, will result in changes of the labour market and force new forms of employment. Digitization makes work less linked to time and place, and more with independence and autonomy which is followed by the monitoring of effects only. It is, therefore, important to find solutions for the technology to support human capital rather than substitute employees in the performance of their tasks. The new style of work associated with the IT revolution has been idealised (Scholz, Taylor, Francis, 2013). Growing opportunities to replace unskilled labour with technology and capital have created a situation in which one should not expect growing demand for unskilled labour (Glaeser, 2014, p. 108). Not only does ICTs offer the possibility to replace people in performing monotonous tasks, repeatable activities or outsourcing that does not require a direct contact, or establishing virtual companies, but, what is very important, they enable to make working time and place more flexible for a wide range of employees. They seem to provide a particularly useful mechanism in the case of people re-entering the labour market, people for whom the market has become much wider and it is no longer limited to the place where they live. However, with the growing role of the project-type work in the IT sector, which will push out the full-time employment model, certain drawbacks started to appear. Those included lack of financial stability and social assurance attributed to an employee, e.g. holiday leaves and benefits (Jung, 2016, p. 84). Considering the key role of data analysis in Industry 4.0, industrial data analysts will be in high demand. Analytics based on large data sets has emerged only recently in the manufacturing world, where it optimizes production quality, saves energy, and improves equipment service (Rüßmann, Lorenz, Gerbert, Waldner, Justus, Engel, Harnisch, 2015). According to the forecast, we may expect about 70 thousand jobs in relation to data analysis. autonomous robots will have the capacity of managing some of this data to adjust and suggest changes by themselves to improve and predict their functionality and flexibility (Dopico, Gomez, De la Fuente, García, Rosillo, Puche, 2016, p. 407). The level of collaboration between people and machines will inevitably grow. Human labour replaced by robots and artificial intelligence will probably expedite around 2025. However, in the nearest future, with the growing use of robots, the number of robot coordinators will be growing to create 40 thousand jobs (in place of low-skilled production staff) (BCG, 2016).

[4] Previous market studies have confirmed information that the majority of new jobs in the sector of services concentrated in three areas where new information techniques and technologies are in use:

1. Market services: IT, tourism, air transport and business services.
2. Public sector: education and health.
3. Personal sector: culture, recreation and leisure.

Instead of growth in employment, the development also brought reduction in traditional services, i.e. retail and postal services.

In coming years, we may expect further, however moderate, development of the services market. According to forecast, a rapid growth can be noted in infrastructure hosting (17.5%) and hosted application management (17.6%) as stimulated by wider use of cloud-based solutions.

4. BASIC LABOUR MARKET COMPONENTS IN POLAND

In the past 25 years, Poland doubled the size of its economy in terms of GDP (McKinsey 2015). This is related to the fact that the development was largely based on a competitive labour cost and highly skilled employees. At the moment, due to the digitization of the global economy, the significance of low labour cost is no longer so much important. Companies operating on the market should rather commence or even expedite the digital transformation to catch up with the rest of the world in the field of productivity. The development of modern ICTs has brought a variety of Internet applications. Examples can be seen in the revised structure and operation of traditional companies (Drab-Kurowska, 2006, p. 197). ICT changes resulted in rapid development of information services which increase their share in the GDP and generate new jobs. At the moment, the ICT share in the Polish Gross Domestic Product is approx. 5%. According to the forecast, in 2020, it should reach from 9% to 13% GDP. According to the Eurostat, in 2016 as much as 41% of EU companies struggled due to a shortage of IT-skilled employees. Major problems with the recruiting of specialists were recorded in the Czech Republic (66%), Slovenia (63%) and Luxembourg and Austria (61% in both countries). The situation was different in Spain where only 17% of companies faced shortage of employees. It was similar in Greece with only 28% of companies facing the problem to find ICT specialists, as well as Poland and Italy (31% in both countries). The study of automation in Polish production companies have showed that managers in those companies still struggle against challenges of the third industrial revolution, a revolution which involved microelectronic technologies**.** Only 15% of Polish plants became fully automatic (ASTOR, 2015), and 76% of the surveyed businesses reflected on their partial automation. Moreover, the minority of plants use IT systems for operational management and manufacturing execution systems (MES). In 2015, production data collection methods included mainly those that required human intervention. The integration of machine execution systems with industrial software to automate acquisition of data were implemented in 36% Polish companies. It is worth noting that automatic production data collection is one of indispensable components of a modern plants enabling changes required to implement the fourth industrial revolution. While analysing the robotics level in the German industry, it should be noted that it is incomparable with the Polish one. In 2013, there were 292 robots per 10,000 employees in Germany, whereas in Poland only 19 (ASTOR, 2013).

5. THE ROLE OF COMPETENCES IN REVOLUTION 4.0

Today, revolution 4.0 changes the labour (Erol, S., Jäger, A., Hold, P., Ott, K., & Sihn, W., 2016, p. 13-18). Certain professions existing today are going to be replaced with new specialisations, and this is inevitable, as in the case of every innovation. Although, in its early stage, the technical and technological advancement brings lower demand for labour, later new jobs are created. Companies should be aware of the need to react speedily to changes on the market and adjust to the needs of new customers. This requires new employees furnished with relevant digital competences and the ability to operate in a rapidly changing environment. In particular, low and medium-skilled employees who perform repeatable uncomplicated activities will be automated at the first stage. Reduction in employment at routine medium-skill positions will lead to polarised employment and increase in social inequalities. On the one hand, automation, offshoring and competition of import from emerging economies can be indicated as the main cause of those changes. On the other hand, e-competences[5] (digital skills and competences), entrepreneurship, management of changes and creativity will be most wanted among employers.

[5] E-competences is a harmonious set of knowledge, skills and basic information that enables using digital technologies efficiently in various fields of life.

A survey aimed at examining ICT competences was carried out among employees in October and November 2017. The survey used the CAWI method and involved a sample of 138 working Poles[6]. The surveyed employees were asked questions about ICT competences. Additionally, the goal of the survey was to obtain information and opinions of the surveyed employees regarding their possibility to develop their e-competences. Due to the limited nature and size of the article, its further part refers only to selected findings. Answers given to a question about the need for latest ICT competences in companies are presented in figure 1.

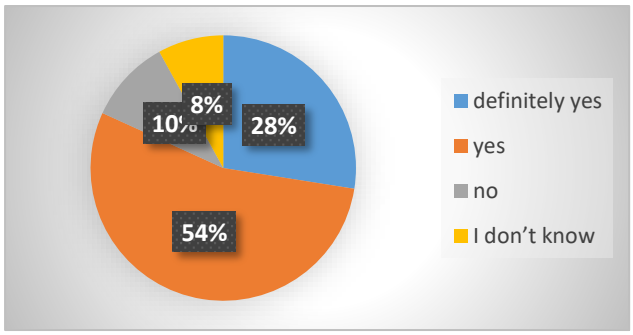

Fig. 1: Opinion among employees about ICT competences (Source: own materials)

The survey showed that 38 employees (27.5%) believed that the latest ICT competences were definitely needed in their current jobs, and as much as 75 of the surveyed (54.3%) confirmed that the competences are needed, whereas 14 people (10.2%) declared that they do not need ICT competences and 11 people (8%) could not provide a definite answer. It seems that certain number of employees are not even aware of the necessity to have and develop ICT competences. Since ICT competences involve deepening our knowledge, employees were asked whether their companies provided training programmes. Answers to this question are presented in Figure 2.

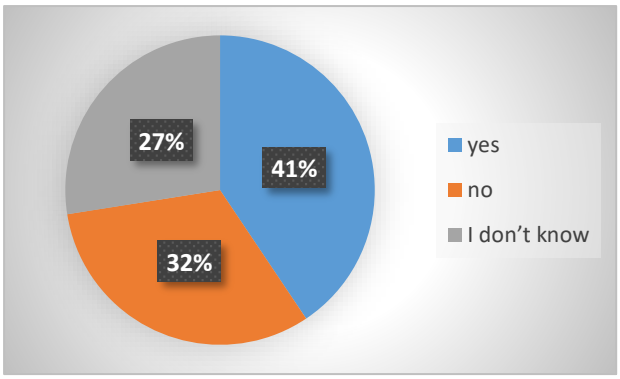

Fig. 2: ICT training system in the company (Source: own materials)

Answers given showed that only 56 people (40.6%) stated that their companies provided a system of ICT training. The number of employees who do not know whether their companies provide an ICT training is stunning, as many as 38 people (27.5%), and 44 people (31.9%) stated that there was not such training at all. This means that the majority of companies do not provide any ICT training.

[6] The article adopted the following assumptions for the survey:
1. Non-random selection.
2. Non-probability sample.
3. Definite sample size.

Statistical significance was α=0.1, whereas acceptable measurement error d=0.09.

Another question asked regarding ICT competences referred to the most favoured form of such as training. Answers are presented in Figure 3.

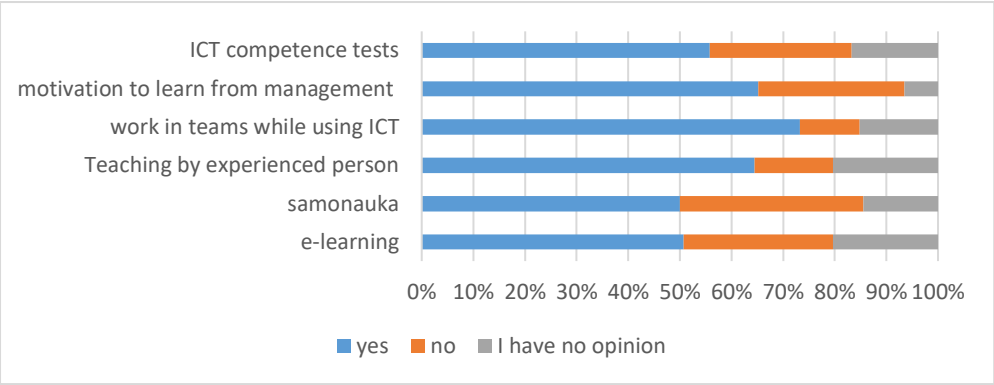

Fig. 3: Methods for developing ICT competences (Source: own materials)

As many as 101 people (73.2%) highlighted that working in teams while using ICT improves those competences. Over 60% stated that the competences can be developed by teaching provided by an experienced colleague or mentor (89 people, 64.5%). Self-improvement was supported by 69 employees (50%), which was similar to e-learning emphasised by 70 people (50.7%). Competence tests was the answer given by 77 people (55.8%). However, in-depth interviews showed that employees believe that tests checking their knowledge could be favourable, but they are afraid of poor results and this discourages them to promote such them in their companies. It is interesting that so many employees surveyed did not have any opinion on ways of expanding their ICT competences. In-depth interviews showed that people can see a growing gap in those competences due to a rapid development of ICT, which makes it difficult for them to catch up with the development or even discourages them to further their own development. This means that with the development of ICT competences companies should provide training and motivate employees in their self-development effort. The development of e-competences in the society should be stimulated by including citizens in the process of creating the information society, reducing digital exclusion and the development digital skills at every level. It is necessary to strengthen relations between business and academia to adjust teaching programmes to the actual needs of the hi-tech sector and improved utilisation of scientific research in business, e.g. combing public and private funding designated for research and development. Usually, IT competences are associated with advanced digital competences developed by ICT professionals. However, today's understanding of digital competences is no longer limited to ICT specialists but is has a universal character and common social dimension[7]. Changes aimed at making form, time and place of work more flexible will concentrate on relations with experienced employees having advanced competences and skills. While analysing the influence of new techniques and technologies on the labour market we should also take into consideration other elements, such as demographic changes in the society, migration, and challenges related to directions of education. Four main factors (structural changes, globalisation, technology development, and education) have changed the demand for specific skills and type of work provided.

[7] Social digital competences are a set of skills determining the efficient use of electronic media and it is a 'very wide set of skills used for efficient and competent use of new technologies and active participation in the life of the information society' (Diagnoza 2013, p. 38), economic life included. The methodology applied by the Chief statistical Office intends to measure the information society against 10 computer skills and 9 Internet skills (people at 16–74 years of age).

Already today, we encounter changes triggered by ICT technologies in terms of requirements, digital and information competences[8], and knowledge and skills that employees are expected to have. The labour market changes initialled by the ICT technology give rise to new opportunities, as well as threats for individual members of the society. Opportunities include creation of new professions, new jobs, new forms of work, reduced unemployment, unbundling work place and domicile, improved work conditions, life-long learning, reduction in the cost of office space. Threats, however, include growing unemployment due to automation of certain work posts, decreasing employment in specific sectors, larger generation gap, life-long learning and capacity to change qualifications. Revolution 4.0 promotes connecting to the Internet everything around us to provide real-time monitoring of our homes and companies. This exposes those places as a potential target of cybercrime.

6. SELECTED PROGRAMMES SUPPORTING THE DEVELOPMENT OF REVOLUTION 4.0 IN POLAND

In 2014-2020, Poland plans to implement the following EU funded programmes: Smart Growth Operational Programme, Digital Poland Operational Programme, Infrastructure and Environment Operational Programme, Eastern Poland Operational Programme, Knowledge Education Development (POWER), Regional Operational Programmes (ROP), Technical Assistance (POPT), European Territorial Cooperation Programmes (ETC).

Programmes discussed in the article and concentrating on the development of ICT in Poland include:

- Smart Growth Operational Programme concentrates on R&D cooperation, R&D infrastructure, business support institutions, innovation in companies, and economic cooperation and promotion. Innovative Economy is a part of the Programme, whereas digital development was turned into a separate programme of Digital Poland.
- Digital Poland Operational Programme has been designed to strengthen digital development in the country based on universal access to the broadband Internet, efficient and user-friendly public e-services and continuously developed digital competences of the society. Priorities of the Programme include:
  - universal access to the broadband Internet by eliminating territorial disparities; mandatory connection of all types of schools to the Internet;
  - e-administration and e-government implemented by enhanced access and quality of public e-services; digitisation of processes and accessibility and use of public sector information;
  - digital competences of the society by training on digital competences, including teaching of programing languages in schools; E–Pioneer – supporting talented programmers and involving then in solving specific social or economic problems.
- Jobs for Youth Project designed to create 100 thousand new jobs by 2018 for unemployed people below 30. The project is expected to develop a forecast for increase of jobs in certain sectors and decrease in others in 2012–2020.[9]

[8] Information competences are a set of skills that enable us to determine when and how information is needed, whereas digital competences are the key permissive for using ITC at the primary level and achieve various benefits using digital technology. (Ala-Mutka, 2011).

[9] According to analysis, the most wanted among employers should be specialists in administration and management, sales, marketing and public relations. The industry should employ 564 thousand people, 175 thousand more than it does today. Other professions in high demand include analysts and financial advisors – number of new jobs expected is 115 thousand (up to 380 thousand), as well as IT specialists (database and computer network management, and programmers) – their number should increase by more than 100 thousand (to reach 286 thousand). This group will encounter the fastest growth, and the labour market for them will increase by more than fifty percent by the end of the decade.

- IT/ICT Sectoral Promotion Programme implemented by the Polish Agency for the Development of Enterprise, measure 3.3.2 – Promotion of economy based on Polish brands – Brand of Polish Economy. The main goal of the programme is to present Polish ICT products[10] and services among current and potential partners abroad and the promotion of Poland as a country generating advanced technologies and services, and offering interesting and innovative solutions while having potential for the growth on foreign markets.

There are many programmes which can enhance e-competences among members of the Polish society. It is important to make citizens aware of the need to learn continuously and match the rapid development of the ICT sector. This is true not only in the case of ICT specialists but the entire society which must prevent digital exclusion, especially among elderly people[11].

7. CONCLUSION

Industrial communication systems underwent a long evolution with many influences from technologies from outside the actual automation domain (Wollschlaeger, Sauter, Jasperneite, 2017, p. 26). If we are to become ready to utilise opportunities created by the fourth industrial revolution, we need to ensure a full access to the technology developed at the previous stage. This means that we need to build a robust infrastructure that enables automation and digitisation of production. This technological layer is the foundation for further investment in 'smart' technologies. Moving to the 4.0 level necessitates major investment in educating managers and engineers and their competences suitable for the implementation and maintenance of latest technologies. Mere implementation and acquisition of IT technologies in the company does not make that company competitive themselves. ICT technologies have become rudimentary commodities in companies. Benefits of ICT technologies are self-explanatory and influence directly the efficiency of business activity. Progressing digitisation and virtualisation of the socio-economic sphere in the world generates demand for ICT specialists and we can expect this to continue year after year.

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[11] At the moment, we witness a pre-figurative culture, which means that the older generation can no longer catch up with changes and in consequence older people need to be taught by younger ones. M. Mead, an anthropologist, referred to such a culture still before WWII.

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THE ROLE AND PLACE OF ISLAM IN THE STRUCTURE OF THE MODERN KAZAKHSTAN SOCIETY

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ABSTRACT

Kazakhstan is the country, where 70% of the population is Muslim. The Islam has become an integral part of the Kazakh culture, politics, economics, and law. Still, Islamic cultural component keeps the first place standing out in the process of interaction of different traditions that characterized the entire pre-Islamic society. Being united with Islam, the diverse cultural forms formed the basis for the traditional lifestyle of the Kazakh nation. Kazakhstan has assumed a role of a guarantor of peace in Central Asia. Promoting peaceful dialogue in the spirit of Eurasianism, acting as a regional stabilizer, and leading in the process of economic reforms in the region help Kazakhstan to play a significant role in all Eurasian global affairs. The country heads in such essential systems of cooperation and security as SCO, CST, and Common Economic Space.

Keywords: *Common economic space, Euraniasims, geoeconomics, Islam, Kazakhstan, Muslim, politics, religion, terrorism*

1. INTRODUCTION

Kazakhstan is part of a vast area of Islamic culture. At the same time, historical belonging of the Steppe to any religious tradition has never been explicitly expressed. By the time of the penetration of Islam into the territory of Kazakhstan, it was inhabited by ancient Turkic nomadic tribes, whose spiritual and religious life was very diverse, based on the worship to nature and veneration of ancestors, the deification of the sky (Tengrism). These beliefs underwent a significant East Iranian influence by Zoroastrianism. Turkic society has always been characterized by the importance of personal relationships, which outweigh any economic relations. Such a culture is marked by those values that have an enduring significance for all its members. The society is interwoven with unique spiritual interrelations, which are natural and constitute a kind of communication code and the language of communication, as well as a form of transmitting the symbols that are relevant for the given society. Here spiritual production has overwhelming importance. Therefore, culture becomes a leading component in contrast with economy and politics. Invisible spiritual ties wrap around the whole construction of the Turkic civilization, making it unique. That is why the Turks oppose both individualism of the West and corporatism of the East giving rise to a kind of synthesis, the rudiments of which will be called later 'Eurasianism.' Lev Gumilyov wrote, "Bordering with the ancient civilization of

China in the East, and with the equally ancient culture of the Western European in the West, this geographical area included diverse peoples, with different economic skills, religions, social institutions, and customs. Nevertheless, all neighbors experienced special unity» [1].

2. CHAPTER

Interaction of different cultural traditions inevitably led to a syncretistic mixture so much typical for a pre-Islamic cultural layer. Being united by Islam, those different traditions subsequently formed the cultural basis for the lifestyle of the Kazakh society. Also, the central role in the conversion of nomads to Islam at an early stage was played by the Sufi missionaries of such brotherhoods as Naqshbandiya, Yassauiya, Kadaria, who were heading to the Steppes from the urban centers of Maverannahr, mainly from Bukhara. In the ^{16th} century process of the Kazakh nation formation, Islam contributed to the political history of Kazakhstan. It made a significant influence on establishing and strengthening the Khans' power, becoming a religion that unites disparate Kazakh tribes into a single unit. This vital and immense role of Islam was highly appreciated by the Kazakh khans. Subsequently, the Muslim religion became an inseparable part of Kazakh culture, politics, economics, and law. Among the features of Islam in Kazakhstan, one can single out its inextricable link with the ancient Türkic beliefs, and after the Mongol invasion - with the Mongolian beliefs. Various religious views closely intertwined with each other, passed a complicated and lengthy process of adaptation and acculturation, before becoming an integral part of Kazakh culture. Thus, talks about «pure» Islam on the territory of Kazakhstan have no groundsit,. To the contrary, Kazakhstan has its version of Islam. By the 16th century, the Kazakhs had already a relatively clear Muslim religious identity, considering themselves the Sunnis and Hanifis.

2.1. Islamization of the Kazakh steppes and Islamic features in Kazakhstan during the colonial period

In the 17th and 18th centuries when Kazakhstan became a part of the Russia Empire, a new stage of the Islamization of the Kazakh steppes began. The Khans lost their political power and authority, giving way to the district volost' chiefs appointed by the Russian government. When khans lose their control, the same happens with the Sufi leaders, ish'hans. The role of Sufi brotherhoods is rapidly declining, and the Muslim clergy of Kazakhstan lose their independence becoming an integral part of the Orenburg Muftiate. The Islam of Kazakhstan in the colonial period found itself in a new ethno-social situation. In the late 70s and the early 80s of the 19 century, two large Muslim communities - the Uighurs and the Dungans - moved to the territory of South-Eastern Kazakhstan from the border regions of China. It happened due to another stage in the development of Russian-Chinese relations when large Muslim groups living in the Ili region of China accepted Russian citizenship. They decided to relocate and not be the minority in the cultural environment of China. Recognising Islam as a dominant religion that has a direct impact on people of Central Asia, the Soviet government during the first years of its existence established in the territories a joint body or the Regional Bureau of Muslim Communist Organizations. The chairman of this authoritative organization was Turar Ryskulov, a famous representative of Kazakh peopleTurarRyskulov. Before the collapse of the Soviet Union, the Muslim Spiritual Directorate of the USSR functioned in Moscow. With the attainment of independence, religion was recognized as one of the components of the cultural heritage and served as a powerful stimulus for the revival of the spirituality of the Kazakh nation. Islam contributed to the self-identification of the Kazakh ethnos serving as a spiritual and cultural factor in the formation.

2.1.1. The place of Kazakhstan in the Islamic world

The majority of the population of Kazakhstan consider themselves Muslims. But the society is built on respect for the rights of believers of all faiths. Islam and Orthodox Christianity formed long-standing, good relations as main religions of the region. Kurban-ayt and Christmas are official holidays indicating the recognition of the role of Islam and Christianity in the formation of the local culture. There are no manifestations of antagonism between representatives of other religions. Currently, the total number of religious associations is more than 3,600 representing 18 denominations. There are 3,464 religious buildings in the republic, including 2,550 mosques, 294 Orthodox and 109 Catholic churches, 495 Protestant churches and prayer houses, seven Jewish synagogues, two Buddhist temples, seven prayer houses of the Society for Krishna Consciousness and the Bahá'ís. In contrast, 16 years ago there were only 46 religious organizations [2]. The mainstream current of Islam in the republic is Sunnism of the Hanafi madhhab, characterized by tolerance to dissenters, the use of the local customs of people, analogy (qiyas), and juristic preference (istihsan) in legal matters. The madhhab is professed by Kazakhs, Uzbeks, Kyrgyz, Uighurs, Tatars, and other nations. Shiism in Kazakhstan is represented by Azerbaijanis and Tajiks. Being a secular state, Kazakhstan historically, geographically, politically, and spiritually has connections with the Islamic world through various international channels and Muslim organizations. Numerous Muslim publishing houses, radio stations, television, forums, conferences, delegations, etc. play an active role in the communication process. The establishment of the Council of Muftis of Central Asia and Kazakhstan in 2007 with the participation of Grand Muftis of Turkey, Russia, Tatarstan, and Kyrgyzstan was a significant step in increasing the authority of the Spiritual Administration of Muslims of Kazakhstan (SAMK). During the first meeting of the Council on October 29-31, 2007 in Almaty Grand Mufti of the SAMK Absattar Hajji Derbisali was elected as Chairman of the Council. In 2007 the SAMK and Turkey concluded an Agreement on the theological training of scholars for the SAMK in Turkey and publication of methodological literature. The visit to Kazakhstan in November 2007 of Sheikh Saleh bin Muhammad bin Ibrahim Al ash-Sheikh, the Minister of Religious Affairs, Vacuums and Islamic Call of Saudi Arabia, prompted a high interest among practicing Muslims. During his visit, Sheikh Saleh attended several mosques in Astana and gave a lecture in the Palace of Peace and Agreement on the topic« 'Islamic values and relationships between people.' Sheikh Saleh emphasized the following, "First of all, we need an internal Islamic-cultural dialogue. To begin with, we Muslims need a working program or project aimed at enhancing communication and mutual familiarization between Muslim nations. We need to put on a higher level our close relations, our mutual affinity, and understanding, our coherence about the common civilizational goal in the framework of the activities aimed at preserving the essence and foundations of Islam» [3]. Annual and year-round pilgrimages of a vast amount of Muslims from all around the world to the holy places of Islam in Arabia create an effect of a close community bound tightly. In Kazakhstan, the number of people wishing to perform the Hajj increases every year from the year 1991 to the present [4]. The Islamic world is trying to provide the Muslims of our country with some help and support, which indicates their solidarity and belonging to the same religion and the desire to be side by side in the overall development. For example, the construction of the Senate of the Parliament was carried out with the financial support of Saudi Arabia. Almaty opened Nur-Mubaraq Islamic University. On March 22, 2005, a mosque Nur-Astana, constructed with the sponsorship of Qatar was opened in Astana. President Nazarbaev pays substantial attention to spirituality issues. Thus, in the village of Chemolgan, Almaty region, he sponsored the building of a mosque. Nursultan Nazarbaev together with Sultan bin Abdel Aziz, a crown prince of Saudi Arabia, participated in the construction of the mosque in Petropavlovsk. In October 2007, Sheikh Khalifa bin Zayed al-Nahyan, President of the United Arab EmiratesNihayan, who visited the South Kazakhstan region, announced his intention to build a

mosque and a hospital there. These are only a few examples. Being a part of the Islamic world, Kazakhstan develops educational activities of Kazakh-Arab and Kazakh-Turkish institutions for young people. For example, in the city of Turkestan in 1992, the International Kazakh-Turkish University after A. Yassaui was opened. The university receives financial support from the budget of two countries, Kazakhstan and Turkey, and accommodates over 15 thousand young people as its students. Kazakhstan is a full member of the Organization of the of Islamic Conference since 1995. The organization unites 57 Muslim countries. However, along with positive effects, the revival of religion is accompanied by some negative trends. Recently, new external factors have made an effect on the traditional branch of Islam in Kazakhstan. Among them are the following:

- the activities of religious organizations of different currents that do not comply with the laws of the country;
- the spread of Muslim beliefs alien to the Kazakh mentality through the media and social networks;
- politicization of religion through calls for the creation of the Islamic caliphate and other destructive ideas.

In this regard, it is necessary to monitor the tendencies and adequately respond to them. The politicization of Islam can take place in various forms. For Kazakhstan, in our view, the exploitation of the values of Islam by extremists is especially dangerous. Some religious communities fall under the influence of missionaries from foreign Islamic centers that carry the idea of religious intolerance. The most vulnerable to this trend is the southern and western regions of Kazakhstan. In the South-Kazakhstan and Zhambyl regions, the agitation actions of such radical movements as Tablighi Jamaat and Taliban were recorded. The experience of over Central Asian neighbors shows that it is impossible to solve the problem of religious extremism using only administrative methods. Not exclusively power agencies, but other state bodies, public and religious associations, the mass media should take part in mending the situation. Some preventive and educational measures should be organized among the population. The emergence of radical extremist trends represents a specific stage in the evolution of Muslim society. It must be admitted that the existence of well-established religious institutions and competent theologians contribute to the quick neutralization of extreme manifestations in the religious field. In his book "Critical decade" President Nazarbayev wrote, "In a country where 70% of the population are Muslims, imams, the spiritual leaders, should be able to explain the canons of Islam correctly. They need to communicate them to people, conduct educational activities and show that Islam, like any other religion, has nothing to do with terrorism, extremism or radicalism" [5].

3. CHAPTER

In Kazakhstan, the national legislation in the field of combating terrorism and extremism is continually improving. Some changes and additions to the criminal, criminal procedural legislation, and other legislative acts on national security issues. In February 2005, the Laws 'On Countering Extremism' [6] and 'On introducing amendments and additions to some legislative acts of the Republic of Kazakhstan on countering extremism' were adopted [7]. In 2011, a new law on religious activities and religious organizations was ratified. In Kazakhstan, at the moment, some preventive measures have been implemented that put a barrier to extremist activities in our country. Kazakhstan initiated some internal measures at the regional level and on a global scale. In many respects, this took place because of an inability of one single country to combat extremism and terrorism without collective interstate efforts. Such an approach could not lead to a more or less significant result.

The problem of religious extremism is not limited to radical Islamic groups. The potential, and often real threat of extremism comes from new religious trends that came from abroad. The intimidation from these religious organizations is not as noticeable as in the case of radical groups that often tend to open violence or converting activity. In this case, it is due to the introduction of new cultural values and norms of behavior into the Kazakh society, which may conflict with the values that already exist there. It is well known, that as a rule value conflicts are very complicated to resolve.

3.1. The influence of non-traditional religious organizations to Kazakh society

In Kazakhstan, active proselytism of new religious movements can be considered as a potential trigger of extremism. This venture is carried out very 'aggressively,' and the specificity of the Kazakhstani society where the ethnic identity is associated with a religious affiliation is not taken into account. One of the main reasons that course this fact is the fact that Kazakhs and Russians, who traditionally profess Islam and Orthodoxy respectively, are two dominant groups in Kazakhstan; they do not proselytize against each other. There was a change in the national believers' composition among non-traditional religions. Many of them (primarily of foreign origin) are deliberately working to attract Kazakhs. Religious services are held in the Kazakh language, and the state language is studied in the communities. Communities of non-traditional faiths try to involve citizens who speak the state language in their ranks to use them in the future to influence indigenous people. For example, since 2007 in Almaty, a religious association Jehovah Witnesses periodically conducts seminars in the state language, and in the city of Rudny in 2008 a biblical congress 'Follow Christ!' was held with the participation of over 500 believers of different nationalities, including Kazakhs. There are two indigenous congregations in Astana with up to 100 members. The congratulatory letter of President of the Republican Center 'Grace' Kim San Song (Almaty) distinguishes the outstanding services of F. Gainutdinov, the head of the city branch of Kostanay, in the evangelization of Kazakhstan. Preachers of these religious associations are specially trained to work with Muslims, and methodological literature on attracting Muslims into their ranks is published and distributed.

3.1.1. New religious movements

New religious movements are most active in involving new members. For example, the religious associations of Presbyterians, created mainly as a result of Korean missionaries, are spread in the southern, central and northern regions of the country. The consequences of such activities are manifested in the fact that a particular part of the state-forming ethnos, changes traditional cultural and religious guidelines, and does not accept Islam. This phenomenon can become one of the causes of internal ethnic conflicts. This also causes tension between the two main denominations, on the one hand, and non-traditional religious associations, on the other. At the same time, contradictions between the leaders of different confessions become not only their internal issues but go into external manifestation through ordinary believers who belong to wrestling groups. This process requires close attention not only from the state but also from representatives of Islamic associations registered in the Republic.

4. CONCLUSION

An analysis of all the facts of offenses in the field of religious relations shows that most of them became possible due to flawed legislation regulating the activities of religious associations. In his Address to the People of Kazakhstan in 2017, President Nazarbayev noted that "in modern times, humanity has faced the growth of terrorism. The key issues here are the fight against the financing of destructive forces and relations with foreign terrorist organizations. It is necessary to work to prevent the propaganda of religious extremism, including on the Internet and social networks. It is necessary to form in the society the zero tolerance for any actions connected

with radical manifestations, especially in religioun" [8]. Tolerance to Kazakhs is inherent. In one of his Address to the people of Kazakhstan, the President pointed out:**,** "During 16 years of Independence, we realized our model of ensuring public stability, interethnic harmony, the formation of Kazakhstan's identity and Kazakhstan's patriotism which became our Kazakhstan «know-how». We are rightfully proud of it and must be guard carefully» [9]. Today, because of the peacekeeping vision of N.A. Nazarbayev, Kazakhstan becomes the only guarantor of maintaining the security regime in Central Asia. It is his status as the state apologist for the peaceful dialogue in the spirit of Eurasianism, the regional power-stabilizing security. As the leader of economic reforms, President Nazarbaev plays a significant role in all Eurasian global and regional geopolitical, geoeconomic and geo-information structures, including such vital systems of cooperation and security as SCO, CST, and Common Economic Space.

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INTERNATIONAL LEGAL EFFORTS TO FIGHT TERRORISM: SOME CONSTITUTIONAL IMPLICATIONS

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ABSTRACT

It is well known that the nature of international legal efforts to fight terrorism has experienced a substantial change after 9/11. With the United Nations Security Council Resolution 1373, and other post-9/11 Security Council's resolutions as well, the Security Council has created international anti-terrorism standards that all member states are bound to follow. However, at the same time, states have recieved a wide range of discretion in the interpretation of the respective resolutions. Not suprisingly, this resulted with some constitutional questions and implications. The aim of this paper is to analyze respective constitutional implications and the starting thesis of our research is that, in general sense, new laws adopted in individual states in order to comply with the anti-terrorism resolutions, with the focus on enhancing national security, have implications (primarily) on separation of power and protection of human rights.
Keywords: *anti-terrorism, constitutional implications, human rights, resolutions, Security Council*

1. INTRODUCTION

There is no doubt that terrorist acts have been committed for years (and even centuries). Yet, most of us can agree that only after September 11, 2001, the international community has come to realize that terrorism is a global phenomen and that (consequently) must be confronted by the international community. Actually, this is not the first time that the topic of terrorism has caught the attention of the international community – in 1937, the International Conference on the Repression of Terrorism, established under the League of Nations, draftted a Convention for the Prevention and Punishment of Terrorism and altough the final draft was never adopted (it was, actually, ratified by only one party – India), we may say that this Convention was "the first attempt by the world community to legislate against terrorism" (Falvey, 1986, p. 326). Besides, altough multilateral instruments against terrorism have existed since the 1960s, it seems that only after September 11th international efforts to fight against terrorism has been indeed identifisied and accelerated. On the other hand, it is well known that the global terrorist threat requires a global and comprehensive response that provides solutions on regional, national and international levels. The aim of this paper is to give an overview of international efforts to fight terrorism and the emphasis will be on (some) obstacles to international legal cooperation in the fight against terrorism, from the failure of international community to reach an international definition of terrorism, to the fact that extradition of terrorist can be denied on various grounds. Finally, while evaluating some successful efforts to enhance international legal cooperation in the fight against terrorism, adequate conclusions about implications of these efforts on a national constitutional law will be made.

2. INTERNATIONAL LEGAL EFFORTS TO FIGHT TERRORISM

Even though terrorist acts have been committed for years, I believe we may agree that there has been an evolution in the nature of terrorism, especially over the past 20 to 30 years. To keep pace with this evolution, the United Nations (UN), as the world's foremost multilateral body, and regional organizations have taken quite a few steps. In the field of international terrorism, the UN system as a whole has been dedicated - for decades now, or since the early 1960s - to developing an effective multilateral response to acts of terrorism. Since 1963, under the

auspicies of the UN and its specialized agencies, the international community has developed 13 international ("specialist" or "sectoral") conventions and protocols (last one is from 2005) prohibiting different acts of terrorism, such as hijackings, taking of hostages, terrorism bombings, terrorism financing, nuclear terrorism, to name some of them. On the other hand, the level of signature and ratifications was very low until the attacks of September 11 - by 2001, only two countries (Botswana and the United Kingdom) had acceded to all 12 (than existing) UN conventions related to terrrorism. Also, it is symptomatic that only four states (Botswana, Sri Lanka, United Kingdom and Uzbekistan) had ratified the 1999 Convention for the Suppression of the Financing of Terrorism, and we know that this measure relating to terrorist financing was to become key to the Security Council's strategic response to the September 11 attacks (Norman, 2004, p. 9). As a result, we may agree that "the UN's role in counter-terrorism before 11 September 2001 was very informal, encouraging, rather than requiring, members to combat terrorism" (Messmer, Yordan, 2010, p. 173). However, this picture of the UN's role has dramatically changed of transformed after the attacks of 11 September. The tragic consequences of September 11 "galvanized the Security Council to change the legal landscape related to terrorism" (Joyner, 2004, p. 242). This is clearly seen in Security Council Resolution 1373 (SCR 1373), which obliged all states to legislate in acting against the financing of terrorism (SCR 1373, para. 1) and any other form of support, active or passive, to terrorism (SCR 1373, para. 2). This Resolution emphasized the importance of the exchange of information and full international cooperation, particularly through bilateral and multilateral arrangements and agreements. It called for ratification of all relevant international conventions and protocols relating to terrorism, and in particular it called for ratification of the 1999 International Convention for the Suppression of the Financing of Terrorism ("as soon as possible"). Resolution 1373 also created a Counter-Terrorism Committee to monitor the resolution's implementation and it may be concluded that "this was the first time in the field of international terrorism that general 'executive action' and the adoption of international legal norms to fulfil the will of the Security Council was to be monitored by a Security Council committee." (Norman, 2004, p. 11). Overall it can be seen that Resolution 1373 set an obligatory legal regime to realise an UN strategy against international terrorism "encompassing a wide range of judicial, criminal, police and immigration cooperation measures."(Norman, 2004, p. 11). In other words, with the adoption of Resolution 1373 states were obligated to implement more effective measures against terrorism at the national level and to increase coopretation at the international level. As a consequence, the previoulsly extremely low level of signature and ratification of relevant international conventions and protocols relating to terrorism was considerably increased. The best example are the most important conventions, the International Convention for the Supression of Terrorist Bombings and the International Convention for the Suppression of the Financing of Terrorism. In the case of the convention on terrorist bombings, the relevant data shows that in the first four years after the opening of the convention, only 28 states ratified the convention, but after September 11, an additional 67 states ratified it, while the number of States parties had increased to 164 by 1 May 2011. Also, the data from the Global Survey of the Implementation of Security Council Resolution 1373 (2001) by Member States, prepared by the Counter-Terrorism Committee Executive Directorate, shows that in the first two years of the convention on terrorist financing only four states ratified the convention, but since September 2001 the number of States parties reached the total of 173 as of May 2011. Altough the increase in support for the ten other conventions has been less dramatic, these results show that the UN has been successful in mobilizing the international community to fight terrorism. While Resolution 1373 still remains a key United Nations document in the field of counter-terrorism, some other Security Council resolutions – like Resolution 1535 (passed in April 2004), which created the Counter-Terrorism Committee Executive Directorate (to strenghten and coordinate the process of monitoring and implementation of Resolution 1373),

or Resolution 1540, which obliges states, inter alia, to refrain from supporting by any means non-state actors from developing, manufacturing, possessing, transporting, transfering or using nuclear, chemical or biological weapons and their delivery systems, and which requires that, similar to Resolution 1373, all states take and enforce some measures to establish appropriate and effective laws - fill in the broader picture of the Security Council's counter-terrorism approach. As we will see in next sections, this requiering that all member states change their laws in particular ways, may have - and it actually had and has - serioulsly implications on domestic constitutional standards and values. Following the matrix of the Security Council 1373 Resolution, a number of regional organizations, such as the European Union, African Union, and the Associations of Southeast Asian Nations, have also taken quite a few steps in the area of counter terrorism. Some regional agreemenst could be actually seen as a very successful efforts to enhance international legal cooperation in the fight against terrorism. In this context, we may mention the European Union engagement in defininig terrorism (with the 2002 Framework Decision on Combating Terrorism) and the European Arrest Warrant story. With regard to the European Arrest Warrant (EAW), we may say that this is one of the most ambitious projects of cooperation in criminal matters in the European Union and it must be emphasized that the EAW speeds up and simplifies extradition procedures (Blagojević, Mohay, 2011, p. 59), due to the abolition of the dual criminality principal which affects 32 crimes ("list-offences"), including terrorism, and due to the fact that there is an obligation of the arrested person's home state to return that person to the state where the crime was committed within 60 day. At thesame time, we must not forget that the adoption of the EAW has raised many constitutional issues. As Framework Decisions need to be implemented into national law, legality of such acts could be, and it really was, challenged both at the national and the European level. At the European Union level, the legality of the EAW Framework Decision itself was questioned before the Court of Justice of the European Union in case Advocaten voor de Wereld (where the Court upheld the legality of the EAW Framework Decision), while the implementation of the EAW at the national level, which included some rather drastic changes – such as the one dealing with the prohibition or limitation of citizen extradition and, consequently, radical interventions within national legal systems – resulted in few constitutional conflicts in several Member States. Besides the examples from Poland, Cyprus, Ireland, Greece and Czech Republic, quite intereseting is, of course, well known German experience with the implementation of the EAW, where the German Federal Constitutional Court (Bundesverfassungsgericht) in their decision of 18 July 2005 declared the entire German implementation law unconstitutional explaining that it did not respect fundamental rights and procedural guarantees and so was contrary to the German Constitution. As a consqunce, the new German implementation law was enacted in 2006.

3. MAJOR OBSTACLE(S) TO INTERNATIONAL COOPERATION IN THE FIGHT AGAINST TERRORISM

It is well known that after September 11 the international community has come to realize that terrorism is a global phenomen and that (consequently) must be confronted by the international community. However, despite this findings, there is still a variety of obstacles to international legal cooperation in the fight against terrorism, from one of the major obstacle, which concerns the failure of international community to reach an international definition of terrorism, to the fact that the extradition of terrorist can be denied on various grounds. For the purposes of this paper we shall limit ourselves on, in our opinion, the major challenge to combating terrorism throug international cooperation, and this is a problem of no internationally accepted definition of terrorism. Altough the General Assembly of the UN in its Resolution 54/110 of 9 December 1996 decided to begin "consideration with a view to the elaboration of a comprehensive convention in international terrorism", it seems that – in spite of the tragic events of September

11 – a comprehensive convention is still beyond the reach of both the Ad Hoc Committee and a working group of th General Assembly's Sixth (Legal) Committee. We may ask ourselves why the after 9/11 Security Council's resolutions did not solve this key conceptual problem in fighing terrorism. In this respect, Resolution 1373, which asks states to criminalize terrorism – but without providing a common definition - "represents a lost opportunity" (Young, 2006, p. 44). As a result, the Resolution has left to each state to define terrorism, as each believe it is appropriate. And indeed, not suprisingly, the results were quite varied, including the fact that many of the definitions were quite vague, very broad and sometimes quite problematic. On the other hand, there is a good example of regional engagement in defining terrorism, and this is alreadymentioned case of the European Union Framework Decision on Terrorism. Altough the beginning of the modern era of European counter-terrorism can be located in 1970s (with the establishment of TREVI group, or the Terrorism, Radicalism, Extremism, and International Violence group), the international terrorism moved to the top of the European political agenda after the attacks on America. In this sense, it seems that one of the most important EU reactions to the 9/11 attacks was launching a debate on the proper definition of terrorism. As a result, Article 1 of the Framework Decision on combating terrorism (13 June 2002) defines terrorist offences as "offences under national law, which given their nature or context, may serioulsy damage a country or an international organization where committed with the aim of seriously intimidating a population or unduly compelling a Government, or international organization to perform or abstain from performing any act, or seriously destabilazing or destroying the fundamental political, constitutional, economic or social structures of a country or an international organization." Altough some scholars have pointed out, and I agree with them, that the language used for such definition appears "somewhat complex and uncertain" and thus leaves room for for different interpretations of the same fact (Casale, 2008, p. 62), it must be admited that this Framework Decision - for the first time in the history of counter-terrorism in Europe – "has provided Member States and EU with a common (altough to some extent vague) definition of the offences of terrorism." (Casale, 2008, p. 62). This problem of the vagueness is also the main characteristic of definition of terrorism of some other regional organization - for example, in its Convention on the Prevention and Combating of Terrorism, the Organization of African Union adopted even broader definition of terrorism. According to this Convention, terrorist act means "any act which is violation of the criminal laws of a State Party and which may endanger the life, physical integrity or freedom of, or cause serious injury or death to, any person, any number or group of persons or causes or may cause damage to public or private property, natural resources, environmental or cultural heritage", including "any promotion, sponsoring, contribution to, command, aid, incitement, encouragement, attempt, threat, conspiracy, organizing, or procurement of any person", with the intent to commit any act reffered to terrorist act. This matrix of broad definitions was followed by, unfortunatelly, even less precise national definitions of terrorism.

4. INTERNATIONAL LEGAL EFFORTS TO FIGHT TERRORISM – SOME CONSTITUTIONAL IMPLICATIONS

There is no doubt that the normative antiterrorism actions of the United Nations in generally, and of the Security Council in particular, can be divided on two periods – "pre-Resolution 1373" and "post-Resolution 1373". Indeed, Security Council Resolution 1373 represents some kind of innovative tool to fight terrorism. Its innovative nature has been identified by the adopting – for the first time – "a far reaching and essentially legislative resolution that, for the first time in the Security Council's history, used binding authority under Chapter VII of the UN Charter to require all member states to change their domestic laws in very specific ways." (Scheppelle, 2006, p. 353).

Indeed, the qualitative difference between prevoius Security Council practice and the one which started with Resolution 1373 is manifested in a number of ways. Eric Rosand highlights three innovative aspects of post-9/11 Security Council's resolutions: first, in fact in all prior Security Council use of its Chapter VII powers, the Council was responding to a specific situation – in adopting Reolutions 1373 and 1540, however, the Council was responding to a global threats and thus offering a global approach to help adress them; second, the sanctions or other obligations imposed on all states, prior to the adoption of Resolutions 1373 and 1540, were imposed for a limited purpose (to secure compliance with the targeted state) and thus the resolutions are (explicitly or implicitly) time-limited until the purpose is accomplished – on the other hand, neither Resolution 1373 nor Resolution 1540 contains an explicit or implicit time limitation, and third, while there is a lot of examples where the Council imposed obligations on states (even sometimes requiring them to amend their domestic legislation), in none of them did the Council, as it did in Resolutions 1373 and 1540, lay down a broad set of rules and norms (Rosand, 2004, p. 567-569). It is also interesting to analyze the legal language used in previous Security Council resolutions and the one used in Resolution 1373. While the previous resolutions used the "normal", non-binding lanaguage, such as "calls upon" or "urges", Resolution 1373 departs from this language and instead it "issues mandatory directions in a style characteristic of legislation" (Young, 2006, p. 43), such as "decides that...". In this sense, the Council has imposed a series of obligations on all states, requiring them to take a number of measures to enhance international cooperation in fighting terrorism. According to Art. 2 of the Resolution 1373, the Council decides that all States shall: refrain from providing any form of support to entities or persons involved in terrorist acts, take necessary steps to prevent the commission of terrorist acts; deny safe heaven to those who finance, plan, support or commit terrorist acts or provide safe heavens; ensure that any person who participates in financing, planning, preparation or perpetration of terrorist acts is brough to justice, and ensure that, in addition to any other measures against them, such terrorist acts are established as serious criminal offences in domestic laws and regulations and that the punishment duly reflects the seriousness of such terrorist acts; afford one another the greates measure of assistance in connection with criminal investigations or criminal proceedings relating to the financing or support of terrorist acts, and prevent the movement of terrorists by effective border controls.

As we may see, with Resolution 1373 Security Council has actually directly required that all member states of the UN change their laws in appropriate way. And here we come to the problematic part. As Scheppele has shown, the difficulty is "that the changes required do not necessarily comport with domesic constitutional standards and values" (Scheppele, 2006, p. 359). In this respect, these new laws tend to raise many constitutional questions and implications and they have effects on the most basic constitutional principles – separation of powers (which ensures that exercises of state power are checked and controlled) and protection of human rights (especially with regard to rights of liberty, speech, association and, of course, privacy) (Scheppele, 2006, p . 360). In order to carry out the Resolution 1373 requirements, all UN member states filed at least one report with the Security Council's Counter-Terrorism Committee, which was created by this Resolution to monitor implementation of the Resolution, and all UN member states made at least some changes in their legal system. One way in which the member states reports show that the implementation of the Resolution 1373 requirements has serious implications on human rights and constitutionalism involves the definition of terrorism. As mentioned earlier, the matrix of broad definitions of terrorism adopted by regional organzations was followed by, unfortunatelly, even less precise national definitions of terrorism. And this is not surprisingy. In the absence of universally accepted definition of terrorism, most states defined terrorism in ways that suited them, and many of the definitions raise human rights concerns.

If we just look and analyze country reports filed by member states to the UN Security Council's Counter-Terrorism Committee, we'll see that nearly all member states changed their laws or adopted new ones to respond to September 11, and, what is quite strange actually, most of this changes were quite similar. For example, one of the broad definitions of terrorism is the Great Britain's definition. Article 2 of Anti-Terrorism, Crime and Security Act defines terrorism as meaning the use or threat of action, which is designed to influence the government or intimidate the public or a section of the public, and which is made for the purpose of advancing a political, religious or ideological cause. In the United States, Section 802 of the USA Patriot Act (2001) expanded the definition of terrorism to cover "domestic," as opposed to international, terrorism. Accordint to this Act, the term "domestic terrorism" means activities that (A) involve acts dangerous to human life that are a violation of the criminal laws of the United States or of any State; (B) appear to be intended: (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by mass destruction, assassination or kidnapping. Additionally, the acts have to occur primarily within the territorial jurisdiction of the United States and if they do not, may be regarded as international terrorism. In 2003, France created a new offence in its criminal code (the Act of 18 March 2003), called "pimping of terrorism". This offence makes it possible "to punish anyone who cannot substantiate an income commensurate with his or her lifestyle, while being closely associated withone or more persons who engage in terrorist acts" (France Report to CTC, 2004, p. 16). According to this provision, anyone who is suspended terrorism with suspicious amounts of money can be actually swept into this offence. As a reaction to 9/11, the Anti-terrorism Act of Canada introduced broad definition of terrorist activity. According to this Act, terrorist activity is defined to include any act or omission committed inside or outside of Canada that, if committed in Canada, is one of the terrorist offences referred to in ten anti-terrorist international conventions into which Canada has entered. It is also defined to include a variety of other acts or omissions committed inside or outside of Canada, either partially or wholly, for political, religious or ideological purposes, causes or objectives. Some governments just used the definition of terorism to fight their opponents. In this context and in relation to the issue of human rights, many concerns have been expressed regarding the practice of many governments to take advantage of this fight against terrorism after 9/11. In this context, Joyner points out that in its annual reports since 2001 Human Rights Watch has complained about these efforts to supress dissident minorities and restrict human rights – for example, he states that "China linked the world campaign against terrorism to suppress groups of Turkish-speaking Muslims, specially the Uighurs", or that "the democratic Indian government has used its Prevention of Terrorism Ordinance, originally enacted in October 2001 and made permanent in March 2002, to detain political critics without formal charge" (Joyner, 2004, p. 244). The point here is that the list of the governments which have used opportunities to fights opponents under the mask of the world anti-terrorist campaign is not short. Besides problematic definitions of terrorism, there is one area which is also very problematic, and also very senisitive. Namely, Seucirty Council Resolution 1373 also required states to increase their abilities to detect terrorsist and find ways of intensifying and accelerating the exchange of operational information, especially regarding actions or movements of terrorist persons or networks. And this was translated by some states like a "license" to do "better" surveillance, to increase the lenght of time to hold a terrorism suspect in detention, without charging him with a crime, to make changes in security area in whole. In this context, some states made a lot to concentrate powers in the hand od executive. Probably world's best known example in this context is the USA Patriot Act, which has expanded police and prosecutorial powers and caused many concerns regarding issues such as enhanced survillance, indefinite detention, information sharing, etc. This Act, for example, imposed guilt by association on immigrants, authorized the government to deny entry to aliens for pure speech, expanded the government's authority to

conduct criminal searches and wiretaps withot first showing probable cause, authorized secret searches in cases having nothing with terrorism, etc. (Cole, Demspey, 2002, p. 152-153). The main problem here is that while increasing executive power, the Patriot Act simultaneously reduced "checks and and balances like judicial oversight, public acountabililty, and transparency." (Beeson, 2003, p. 297). For example, the Patriot Act undermined check and balances by giving investigators new power to track Internet usage and to obtain (previously) confidental financial records, and all this without having to demonstrate probable cause or without obtain a judicial warrant (Schulhofer, 2003, p. 77). Many states have also rearanged their security agencies and/or established special bodies to fight terrorism. For example, Spain established a National Counter-terrorism Coordination Centre with the participation of the two State security bodies, responsible to the Ministry of the Interior (national police force and Civil Guard), together with the National Intelligence Centre (which comes under the Ministry of Defence) (Spain Report to CTC, 2004, p. 10). Portugal has created the coordination structure to respond toterrorist threats - Anti-terrorism Control Unit (UCAT), involving Portuguese Criminal Police, Security Intelligence Service, Public Security Police, National Republican Guard and Borders and Foreigners Service (Portugal Report to CTC, 2005, p. 5). Some states have changed their laws to increase surveillance and allow some new methods of terrosim detection. In this context, we may mention Canada's Anti-terorism Act 2015 (Bill C-51), sometimes decribed as "Canada's Patriot Act", which has faced continued critism from civil society organizations and constitutional experts. In "An Open Letter to Members of Parliament on Bill C-51", more then a hundred Canadian law professors have warned Canadian prime minister that this new Act is a "dangerous piece of legislation" that threatens to undermine the rule of law and human rights. The Open Letter contains a critique of the Bill C-51 based in three main points: (a) security intelligence information sharing without enhanced protections for privacy; (b) the criminalizing of free speech; and, (c) the authority to carry out a potentially infinite range of “disruption” measures without adequate oversight. Justien's Trudeau government introduced its answer to controversial Bill C-51 saying that new legislation, National Seurity Act, 2017 (Bill C-59), will strike a better balance betwenn protecting citizens and upholding their constitutional rights.

5. CONSLUSION

We may conclude that since 9/11, and as reaction to Security Council Resolution 1373, almost every country has passed new legislation or changed existed legislation with the aim to fight terrorism. This new laws tend to raise many constitutional questions and it is not surpsinigly that "the burst of lawmaking about terrorism has generated a corresponding burst of constitutional challenges to these laws around the world." (Scheppele, 2010, p. 455). High courts and constitutional courts of many countries, such as the USA, Canada, Spain, Germany, Poland, India, the Chech Republic, have had to rule on the constitutionality of these antiterrorism laws. Not surpsingly, most of these courts have found these laws to be unconstitutional. For example, one of the most famous constitutional courts, the Federal Constitutional Court of Germany, have found thate several antiterrorism laws are unconstitutional. In this context, the German Federal Constitutional Court in the Dragnet case analyzed the constitutionality of electronic profile searching, a search method which uses electronic data processing. Namely, after 9/11, the police authorities of the German states, in cooperation with the Federal Criminal Police Office carried out electronic profile searching coordinated throughout Germany for Islamic extremist terrorists. The objective, in particular, was to detect so-called "sleepers". The state Offices of Criminal Investigation collected data, for example, from universities, residents' registration offices and the Central Aliens Registry und screened the data according to the following criteria: male, age 18 to 40 years old, (former) student, Islamic religion, country of birth. The data obtained were then compared with further

data collected by the Federal Criminal Police Office. The electronic profile searching did not succeed in discovering "sleepers". The Court concluded that preventive police electronic profile searching is only compatible with the fundamental right to informational self-determination if there is a specific danger to a person's life, limb or freedom. Such electronic profile searching may not be carried out in advance of acts averting danger (Order of 4 April 2006, 1 BvR 518/02). Besides national courts, some regional courts have also issued a number of decisions with regard to the legality of antiterrorism measures after 9/11. For example, in the Kadi cases (Kadi I and Kadi II), which concerned targeted sanctions directed at individuals or other entities, in accordance with United Nations Security Council Resolution 1267 sanction regime, the European Court of Justice ''essentially had to decide whether a United Nations Security Council resolution should enjoy primacy over EU law'' (Kokott, Sobotta, 2012, p. 1016). The Court of First Instance (now the General Court) examined (only) whether the Security Council has respected ius cogens in relation to fundamental rights. No infringement of this standard was sustained. On appeal, the Court of Justice of the European Union adopted a different path and reviewed the lawfulness of the EU regulation transposing the Resolution. The Court formally separated the implementing measures at the Union level from the measures taken by the Security Council (de Wett, 2016, p. 40). Having in mind the fact that the protection of fundamental rights forms part of the Union legal order and that all Union measures must be compatible with fundamental rights, the Court ordered the implementing measures to be annulled. At the Council of Europe level, the European Court of Human Rights (ECHR) in number of cases made it clear that nothing changed in human rights standards in post 9/11 period. For example, in the Őcalan case, which concerned one of the Turkey's most known terrorist, this Court made it clear that ''9/11 had not changed its views on the human rights standards to be applied in terrorism trials'' (Scheppele, 2010, p. 459). In this case, the ECHR held that the applicant's rights to fair trial had been compromised (because: he had no assistance from his lawyers during questioning in police custody; he was unable to communicate with his lawyers out of the hearing of third parties; he was unable to gain direct access to the case file until a very late stage in the proceedings; restrictions were imposed on the number and length of his lawyers' visits; and his lawyers were not given proper access to the case file until late in the day), that the applicant's right to independence and impartial trial had been compromised (because: the replacement of the military judge before the end of the proceedings could not dispose of the applicant's reasonably held concern about the trial court's independence and impartiality), and concluded that the imposition of the death sentence on the applicant following an unfair trial by a court whose independence and impartiality were open to doubt amounted to inhuman treatment. Finally, we may conclude that the fight against terrorism presents a real challenge for democratic states, and for constitutional norms and constitutionalism. How effectivelly prevent and respond to terrorism, while safeguarding constitutional values, or how to find this so valuable balance, is one of the crucial questions of constitutionalism across borders in the fight against terrorism.

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COMMUNITY INCLUSIVENESS FOR TOURISM GOVERNANCE AND GLOBALIZATION: THE CASE OF KANAGAWA PREFECTURE, JAPAN

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ABSTRACT

This paper aims to discuss the needs and opportunity for community inclusiveness for attracting international tourists to local destinations in Kanagawa Prefecture, Japan. The local government, communities and business have diverse, individualistic, and disjoint approaches to manage the increasing demand, promotion and marketing of destinations in Kanagawa Prefecture, Japan. The lack of English and cross-cultural communication training for staff in these organizations compromise tourists repeat visits and future demand for tourists' services for first time visitors to diverse destinations in Kanagawa Prefecture, Japan. The need of improving English and cross-cultural communication knowledge and understanding of service staff who are presently working at hotels, hot springs, and restaurants is necessary for the sustainable demand of tourism in the local communities and the increasing need for tourists' services in the prefecture and the country. Government officials, businesses, and community members are not making and effort to give training to the staff attending the services and needs of tourists in Kanagawa Prefecture. Meanwhile, research conducted shows that it is a problem that takes place in many local communities in the Japanese tourist's market and not only in Kanagawa Prefecture. Therefore, it compromises longer stays in the local communities and demand of tourists' services because the lack of cross-cultural communication competence. This study is a qualitative case study approach, using 10 one-on-one interviews with hotel managers and staff in the communities of Yokosuka City, Miura Peninsula and Hakone city located in Kanagawa Prefecture, Japan. Research results showed that community inclusiveness is necessary for the promotion, marketing and development of local destinations in the Japanese tourism market. Also, proper English and cross-cultural communication training is necessary to sustain the continue demand for international tourists' services in the local communities of Kanagawa Prefecture.

Keywords: *Government, Communities, Tourists, Local, Destinations*

1. INTRODUCTION

This research study took place in Yokosuka City, Miura Peninsula and Hakone City in Kanagawa-Prefecture, Japan. The motivation of this study was to analyze the foreign cultural resistance in hotels in these local communities in Kanagawa Prefecture because tourists do not seem to be able to communicate with Japanese nationals because their lack of English and cross-cultural communication. These hotels are often visited by foreign tourists, meanwhile, there is an atmosphere of discomfort from both locals and travelers, because the international travelers do not understand Japanese manners and international travelers can not communicate with the local staff and managers working at hotels. Local staff working at hotels in these communities were interviewed to determine their level of interaction with foreign travelers. The research questions asked in this research project are: How can community inclusiveness contribute to the promotion, marketing and development of the local destination? How is it possible to create community inclusiveness support in the process of building confidence in English language proficiency, and international understanding and cross-cultural communication for the employees working in the local tourism industry? Are the government, companies and communities making a joint effort to support the tourism industry? Hotel managers, staff and

employees discussed and answered the questions in a short interview regarding their perceptions about the tourism industry in the local community and their interactions with foreign travelers. Some of the managers mentioned that they were not promoting their hotels and services to foreign tourists because international tourists lacked the Japanese manners to interact with Japanese customers in the tourists' infrastructure, most travelers staying at the hotels were Japanese tourists. Hotel managers and staff expressed their challenges of communicating with foreign travelers because their lack of confidence in their English and cross-cultural communication skills. Cross-cultural communication competence training is needed among managers, staff and employees in the tourism industry to increase the international tourists visits, satisfaction and repeat visits to the local destinations. Professional development of the employees in the tourism service industry is not an isolated effort, it needs the help, contribution and support of government agencies, businesses and community members willing to participate in the process of boosting and creating together a sustainable tourism industry for the local communities wishing to internationalize their local tourists' destinations.

2. LITERATURE REVIEW

2.1. Tourism governance

"The OEC (2006) advocates a 'whole of government' approach to tourism policy, moving beyond tourism-specific policies towards recognizing tourism as a sector that concerns a wide range of activities across sectors involving horizontal and vertical linkages at national and regional scales and therefore involving many government departments" (OECD, 2006). From a political point of view, governments could provide frameworks to facilitate the planning and development of the industry to the leading group network of tourism operators in the country. Therefore, it could also facilitate the community inclusiveness in the expansion of the tourism industry in the local area. First, it is necessary to consider the willingness of the community to participate in the tourism industry. "The failure to involve and engage with host communities and develop collaboration in the process of planning and management for tourism is and has in the past been detrimental to the sustainability of tourism" (Wearing & Darcy, 2011). In many tourism projects the industry has ignored the communities, not providing a space where it can have participation, collaboration, development of each member of the community in the tourism industry and it is necessary to include them because they can make the destination more attractive to national and international tourists (Laws, E. et al., 2011) Community inclusiveness in the tourism industry has the role of promoting the participation of the community members in the promotion, marketing, and development of tourism. The industry must take the role of planning community members' participation. Community inclusiveness is important because: "Over one billion international tourists travelled the world in 2014, supporting jobs, generating income and boosting development. International tourism currently accounts for 10% of global GDP, 30% of services exports and 1 in every 11 jobs" (UNWTO, 2015).

By learning cultural differences, it will contribute to achieve better international communication understanding with international travelers. It is important to take into consideration important cultural and logistical aspects to improve the organization strategy to reach its customers. The tourism organization expanding its market to international travelers need to make clear that it will serve the customers and businesses for a long time and it is entering the market not with the goal of making quick profits and leave its customers and potential business partners but to stay and contribute to the internationalization of the country and organization (Kittaneh, 2017). The organization needs to have a clear vision and goal to be able to be successful and these must have a transparent understanding of the values of the organization. Matching those values with the needs of the international travelers will be key to continue to grow and expand its businesses.

Collaboration with other companies and businesses in international markets will help that organization to get better stablish and maintain its sustainability in the country and get to know other businesses to expand its operations (Hill & Hult, 2016). Delgado (2017) explained that government institutions, companies and non-for-profit organizations can contribute with each other to maximize the tourists' experiences and the increase the economic development of the local destinations. International tourists can highly contribute to the destination growth of a local destination by sharing their travel experiences with family, friends, and acquaintances and motivating these people to visit these communities to increase the number of tourists visiting local destinations in Japan. Cross-cultural communication is important because it contributes to the understanding of cultural behavior, patterns, and traditions of international societies. Cross-cultural communication plays a very important role in international businesses because it contributes to develop new relationships across cultures, understanding of differences of doing business, and protocol of management styles across countries. Building strong relationships, creating harmony, and saving face are very important aspects in cross-cultural communication exchanges. Therefore, managers, staff working at hotels in Japan must receive the cross-cultural communication competence necessary to be able to satisfy the needs of international tourist visiting local communities and match the values of foreign countries to avoid ambiguity, disappointment and potential conflict between the Japanese and the foreign counterpart. There are still some Japanese businesses that reject serving international expats and/or tourist to avoid dealing with the differences of language and culture.

Therefore, businesses and staff in the tourism service industry must receive training in cross-cultural communication competence to be able to understand the complexities of dealing with international tourists. Hofstede's explained the six dimensions of culture: Power Distance Index (PDI): This aspect explains how members in some countries expects the power to be distributed unequally in the societies and how it will manage these inequalities among the members of the communities. Individualism Versus Collectivism (IDV) Understanding of individualism and collectivism is one of the specific topics that service staff need to learn to understand the behavior of international customers. In one hand, the individual is expected to carry out activities and actions by himself or herself. On the other hand, collectivism or group minded, members will expect the leaders to act and look after the group members. "Individualism refers to the broad values tendencies of a culture in emphasizing the importance of individual identity over group identity, individual rights over group rights, and individual needs over group needs. Individualism promotes self-efficiency, individual responsibility, and personal autonomy" (Ting-Toomey & Chung, 2005). Masculinity Versus Femininity (MAS) in international business refers to how some cultures can be "stronger" and others can be considered "tender". These concepts of masculinity have been also associated to meanings of achievement and heroism and feminism relates to values of cooperation and being humble. The Uncertainty Avoidance Index (UAI) category explains how members of a society can feel comfortable with uncertainty and ambiguity. Therefore, there are more people that worry about the future and economic behavior of local communities and countries.

Long term orientation versus short term normative orientation (LTO), companies and employees in the tourism industry could define short or long term goals depending of the corporate culture past, present and future. Some companies in the international environment may prioritize between short and long term goals depending of the culture of the country. Japan is a low term orientation society because it is a time oriented culture and follows rules, customs and traditions. In the long term orientation, a country's culture may be focus in providing technological education to a society's future human development. In a business context, this category is known as short-term normative versus long-term pragmatic.

Indulgence Versus Restraint (IND). Indulgence refers to countries that will put emphasis on life balance, free time, and enjoyment of recreational activities. For example, Canadians work from 9:00 a.m. to 5:00 p.m. After 5:00 p.m. Canadians will enjoy recreational activities with family members, and friends; like going to play golf, skiing, or bowling. On the contrary, restraint refers to cultures that will take a strong consideration and importance on rules, costumes, and traditions. For example, Japanese culture (Hofstede, et al., 2010).

3. METHODOLOGY

This research project used qualitative methodology to analyse the answers and perspectives of hotel managers and staff working at hotels. Interviews were conducted at hotels regarding the participation of the community involvement in the planning, promotion, and marketing of the local destinations. This research included a literature review and exploratory research about tourism governance and community participation in the promotion, development and marketing of the destination. The participants in this research were Japanese hotel managers and staff members at hotels in Yokosuka City, Miura Peninsula, and Hakone City in Kanagawa Prefecture. The interviewees shared their views, experiences and challenges serving international tourists. The interviewees were asked to share their views and experience on community members involvement in the promotion, marketing and development of tourism in the local communities mentioned. The theoretical framework in this study is based on tourism governance and community participation in tourism promotion, marketing and development of local destinations as well as theory of globalization and cross-cultural communication.

4. DISCUSSION

10 one-on-one interviews with hotel managers and staff in the communities of Yokosuka City, Miura Peninsula and Hakone city located in Kanagawa Prefecture were conducted. None of the service industry employees mentioned the existence of community inclusiveness in the process of destination management, promotion, marketing and development. Some employees hired by the hotels have moved to the local communities to be close to their place of employment.

Government, companies, and communities' efforts to support the tourism industry seem isolated and little has been done to link their efforts to include community efforts in the tourism industry. Government officials at the prefectural level can suggest or impose a political framework to make tourism companies and organizations include the local community in the promotion, planning and development of the local community. Recommendations to tourism companies wanting to include the local community in the promotion, marketing, development of the tourist destination and increase the demand of international tourists in local destinations:

1. Do a market research to find out the feasibility of community inclusiveness. Is the community willing to cooperate in the process of promotion, marketing, and development of the tourist destination?
2. Study the values of the community members. The Japanese government wants to increase rapidly the number of international tourists in the Japanese market. Is the community really interested in getting involved?
3. Learn the language and culture. If the tourism companies and organizations, would like to increase the number of international tourists in their infrastructure, it will need to provide English and cross-cultural communication courses to be able to improve the communication of the Japanese staff with international tourists.
4. Analyze the well-being of the organization and the possibilities for future growth. As the Japanese domestic market is shrinking it will need to diversify its market by attracting international tourists. Therefore, having cultural resistance to welcome and attract international tourists in their hotels is a disadvantage for tourism businesses.
5. Do a feasibility analysis to determine if the organization is going to be able to train

employees in English and cross-cultural communication to increase customer satisfaction in the tourism service industry.

6. Do a market research to find out the interest of international tourists when visiting the infrastructure of the hotels. Most Japanese hotels have a questionnaire to analyze the opinions and satisfaction level of the customers. Meanwhile, this questionnaire forms are only available in Japanese. It excludes the international travelers; the feedback form is also needed in English and other languages.
7. Create accessibility analysis to determine if the international tourists will be able to have access to the hotels and recreational areas.
8. To define clearly what is that audience of the tourist organization to be able to market the services to international tourists.
9. To determine what is competitive advantage of the hotel, what is the benefit it provides to international tourists? Perhaps create a niche market. Have a unique benefit.
10. To define the cost and benefit analysis to expand its market to international tourists.
11. To estimate what is the risk of promoting, marketing and developing the service to international tourists.
12. To create joint ventures or create a partnership with foreign hotels. If the organization is going to be establish by itself, it needs to be able to have business consultants to be successful in expanding its business to international tourists.
13. Establish business networks internationally and advertise in global hotel websites like Agoda, Booking and Hotels.com.
14. Follow up with interested investors, creating joint ventures and partnerships will help the tourist organization share costs and investment to maintain sustainable occupancy. Many Japanese hotels are rapidly aging; therefore, they will have to renew its infrastructure to keep it attractive to international tourism.
15. Marketing the products and services to customers taking into consideration the international tourists mentality. Unfortunately, most of the advertising and marketing available is in Japanese, therefore, it excluded international tourists.
16. The organization needs to hire translators and interculturalist, they need to come to the meeting to follow up about the business operations improvements, therefore, they can communicate with the foreign counterpart if a joint venture is build.
17. Understanding of a collectivist and individualistic approaches in cross-cultural communication is necessary to build hotel managers and staff competitiveness.
18. Understanding of the economic, social and political changing environment of Japan to be able to adapt to the business, values and service needs of the customers.

5. CONCLUSION

It is important to take into consideration the economic, social and political environment of a country before wanting to start doing business in that country and the global competition that faces organizations looking to internationalize their operations. Innovation of services play an important role to promote an image of internationalization in the local communities. Internationalization of the tourism industry in Japan will be a matter of choice but also way of survival and sustainability of tourism in the local communities. Small businesses looking to internationalize must take into consideration several aspects in our global economy environment and how it impacts society. International competition has a direct effect on local competition to attract international customers, business security for future operations become a priority to business owners and community inclusiveness plays a major role for supporting each other. The tourism businesses and government organizations need to find out if the local community would like to become international player before it markets services to international tourists. Some local communities resist change and do not wish mass tourism because it does

not want to jeopardize values, costumes and traditional ways of life. If local communities wish, the local businesses, and the Japanese government could to take the initiative and facilitate the community inclusiveness in the process of building a solid tourism industry in the local communities in Japan with a rapid increase of international travelers.

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THE INFLUENCE OF CORPORATE SOCIAL RESPONSIBILITY ON THE COMPETITIVENESS OF COMPANIES

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ABSTRACT

Corporate social responsibility has been lately in the focus of the scientific and professional interest. Although corporate social responsibility has been a topical research area over the past decades both in the world and in Europe, in Bosnia and Herzegovina this topic is still attracting little interest and that is why there is a lack of adequate empirical research in this area. Therefore, it was one of the main reasons and motives for choosing this topic for a research paper. Corporate social responsibility strategy is becoming more and more popular mainly because its implementation produces better results and gains a certain competitive advantage. The goal of this paper is to prove the relationship between corporate social responsibility and competitiveness of selected companies. The empirical research has been conducted using questionnaire surveys to collect data, information and opinions on the subject of research. In this paper different stakeholders of eight companies from Bosnia and Herzegovina were interviewed/surveyed in order to get information about their attitudes regarding corporate social behaviour of the observed companies. The stakeholders surveyed include chief executive officers, management, employees, and the survey was conducted using a sample of 120 respondents.

Keywords*: enterprises in Bosnia and Herzegovina, competitiveness, corporate social responsibility*

1. INTRODUCTION

In recent years a lot has been spoken and written about social responsibility, not so much on the territory of Bosnia and Herzegovina as in Europe and the world. Corporate social responsibility is a novelty in business world and as such it ignites curiosity for research in many people. Corporate social responsibility concept refers to responsibility to community and society and aspiration towards progress through the protection of the environment, cooperation and joint action. A company does not only need to make profit, but it also has to have positive influence on its business surroundings. Challenges of companies would be harmonization of maintenance and improvement of competitiveness as well as positive response to ethical and social demands of the community in which it operates. The main objective of the research is to determine the level of appliance of corporate social responsibility concept in companies on the territory of Bosnia and Herzegovina and its influence on competitiveness, as well as to examine the attitudes of the employees about corporate social responsibility.

The survey questionnaire will be used to poll the employees on different hierarchical levels within the identified representative company sample. Empirical research will be conducted for the purpose of analyzing employee attitudes from eight companies on the territory of Herzegovina.

2. DESCRIPTION OF PROBLEMS AND OBJECTIVES OF THE PAPER

The research was conducted in eight companies on the territory of Herzegovina because the given topic was not scientifically researched enough on the aforementioned territory. The question arises whether the employees of the surveyed companies are familiar with the significance of corporate social responsibility. Theoretical and empirical research will define and analyze corporate social responsibility with special reference on applying corporate social responsibility in Herzegovinian companies, and competitiveness will be defined and analyzed as well. With this research it is possible to make use of some opportunities for those who do not use corporate social responsibility concept yet, but would like to gather some information on opportunities it gives and results of the research. Accordingly, the aim is also to obtain the results of examining opinions of certain sample of people, of different age and occupation, who represent employees of companies, on the importance of social responsibility for them and their opinions on specific companies. The last objective is to prove the relationship between corporate social responsibility and competitiveness of companies.

2.1. Corporate social responsibility and competitiveness

Social responsibility has a wide range of meanings, translations and definitions. Defining and interpreting differs depending on the country, economic sector, type and size of the company, owner structure, and political system. Organizations that are active in the area of corporate social responsibility define it in three ways: the organization Business for Social Responsibility defines CSR as "achieving commercial success in the way of respecting ethical values, people, communities and natural environment" (Bagić A., Škrabalo M., Narančić L., 2006). Pavić-Rogošić (2012, p10) considers that social responsibility is "a concept in which business subject decides on voluntary level to contribute to better society and cleaner environment, in interaction with other participants". Kotler and Lee (2011, p14) choose this definition of corporate social responsibility: "corporate social responsibility or social responsibility in corporations represents commitment of the company for improvement of the well-being of the community through discretionary voluntary business practice and contribute to the account of their own resources". R. W. Griffin (2005, p120) diversifies four basic elements of corporate social responsibility: economic, legal, ethic and discretionary or philanthropic. Thereby, economic responsibility encompasses obligation of the management to achieve planned economic goals, legal means to work within the laws and regulations, ethical responsibility refers to respecting the standards geared towards the value system that was established by the society. Philanthropic component encompasses activities geared to the welfare of the community. The majority of the literature represents the opinion that the idea of corporate social responsibility became a discussing point in 1950s, especially after book Social responsibilities of the businessman by Howard R. Bowen (1908-1989) was published. The period after Howard R. Bowen's (1953) book publishing, which represented the beginning of the modern understanding of the corporate social responsibility and all the way till the end of 1980s, is characterized by the expansion of company's charitable activities. Business practice is marked by activities such as philanthropy, improving working conditions for the employees, relationship with clients and owners (Carroll, 2008). Twentieth century was marked by significant theoretical contribution to the development of contemporary corporate social responsibility. When we talk about the territory of Bosnia and Herzegovina it is important to mention the transition process that Bosnia and Herzegovina went through. In Bosnia and Herzegovina as well as in other countries of the former Yugoslavia, this

transition process was additionally affected by war, destruction, and increase of nationalism between ethnic groups. Above the economic aspects of the transition, for the corporate social concept to be improved and applied, it is necessary that the stimulating environment exists in the country in terms of legislation and politics. As it was previously mentioned, the research for the needs of the article was conducted in eight companies on the territory of Bosnia and Herzegovina. Bosnia and Herzegovina is a country that consists of two entities, Federation of Bosnia and Herzegovina and Republika Srpska, and Brčko District as a special territorial unit. There are many examples of good application of corporate social responsibility by companies, but companies come across different problems. According to the researches (Ćatić- Kajtazović, 2011.) one of the problems is that the management indicators of World Bank show that B&H achieved minimum improvement in the area of corruption control and establishing the rule of law. Even though, according to the other indicators, Bosnia and Herzegovina recorded significant improvement, it is still far behind the other countries of the southeast Europe. In Bosnia and Herzegovina there are no laws that directly regulate the area of corporate social responsibility of companies. The greatest challenge for the development of the corporate social responsibility in Bosnia and Herzegovina represents the absence of politics, laws and standards relevant for the CSR concept in B&H. Bosnian and Herzegovinian companies mostly understand CSR as philanthropy, donations, well defined strategies of employment or business within the legal norms. Due to its complex organization country of Bosnia and Herzegovina is surely going to need far more time and used efforts in this relation of developing adequate model for systematic application of CSR. Since Bosnia and Herzegovina society is quite young, the companies need to catch up with the established practices of quality CSR that are applied in the world and Europe. The improvement is definitely vivid in the area of development and application of the business ethics in the leading B&H companies which indicates its further development because the small and medium sized companies will soon realize social responsibility and business ethics as a key to achieve competitive advantage. Competitive advantage comes from the value that the company is able to make for its buyers, and that exceeds its production expenses and it is a consequence of the influence of numerous factors (Porter, 1985) – component or determinant of the competitiveness, which mutually affect each other, and the absence of some can prevent or limit positive impacts of the present factor on competitiveness. Competitiveness is the result of many factors, especially competitiveness on the level of companies and favorable business environment that motivates introduction of new products and processes as well as investments. All these factors in mutual interaction lead to higher productivity, higher income and sustainable development. The latest researches of business subjects and their surroundings based on the analysis of the condition, and which were conducted by Porter and Kramer, resulted in developing new paradigm that connect competitive advantages and CSR, creating common value or synergy in the relationship of companies and society. They consider that CSR can become source of social improvement by applying resources, expertise and insight in the activities that are useful to the society as a whole and as such it creates on the new foundation, nulling negative prism of CSR activities used entirely as a promotional tool. One of the realistic strategic options for the development of competitive advantage is CSR. The development of competitive advantage by using CSR is important for few reasons. First of all, the understanding of the influence of corporate social responsibility on economic performance of the company helps corporate decision makers to improve business relations with corporative stakeholders. The second thing, the change of the general attitude towards CSR, from philanthropic (charitable) to strategic approach, leads to competitive advantage. Third, integration of interests of primary stakeholders in corporate strategies and practice significantly influences the society and contributes to building companies' reputation.

Good business results are not the only standard for valuation of success of the organization, but it is said that successful organization is the one that equally takes care of its economic, environmental and social question. This means that with the help of model of CSR it successfully makes profit but in socially responsible way.

3. RESEARCH METHODOLOGY

The empirical part of the research refers to the quantitative research of the relationship between corporate social responsibility and corporate capability of the company, all on the representative sample of 120 respondents from eight companies from Bosnia and Herzegovina. The following research objective was formulated: to examine the relationship between corporate social responsibility and competitiveness of companies. The research was conducted on a sample of 120 respondents, and it included eight companies from the area of Herzegovina, five of which are companies that offer services, whereas the others are manufacturing companies. The selected companies are different in size and business activity, because the aim was to obtain the most credible sample. Each company was given fifteen survey questionnaires. Survey questionnaire consisted of 23 questions and it was divided in three parts. The first, which holds general information, the second, that questions the attitudes of corporate social responsibility, and the third that questions the attitudes of development of components of corporate social responsibility and business results of the company. The research was conducted in the period from December of 2017 to February of 2018. Survey questionnaire, given to the chairperson of the board or members of the board or human resource manager, was sent via e-mail to the selected companies. In the cases of no response within the period of 15 days, contact persons in the companies were asked by a telephone to respond to the survey and to answer the given questionnaires, and in more than one case the questionnaire was personally delivered to be filled. Basic goal of this research was to determine mutual dependence of corporate social responsibility and competitiveness of the chosen companies in Bosnia and Herzegovina. The data was collected in MS Excel database (version 11 Microsoft Corporation, Redmond, WA, SAD), and SPSS 20.0 statistics program (IBM Corp., Armonk, NY, SAD) was used for statistical analysis.

4. RESULTS OF THE EMPIRICAL RESEARCH

Corporate social responsibility is shown as a complex indicator, and 8 different statements were used during the formation of the variable, which refers to the social responsibility in different segments of business and in relation to different groups of stakeholders. In order to ensure the necessary degree of correspondence in estimations of correspondence with statements, Cronbach's alpha internal security quotient was calculated, which in this case amounted to 0,831 as it is shown in table 1.

Table 1. Cronbach 's alpha quotient for social responsibility variable (Research by authors)

Reliability Statistics

Cronbach's Alpha	N of Items
0,831	8

Besides that, the degree of correspondence was calculated for nine estimations through which the variable of competitive advantage was formed.

Table 2. Cronbach's alpha reliability quotient for the variable of competitive advantage (Research by authors)

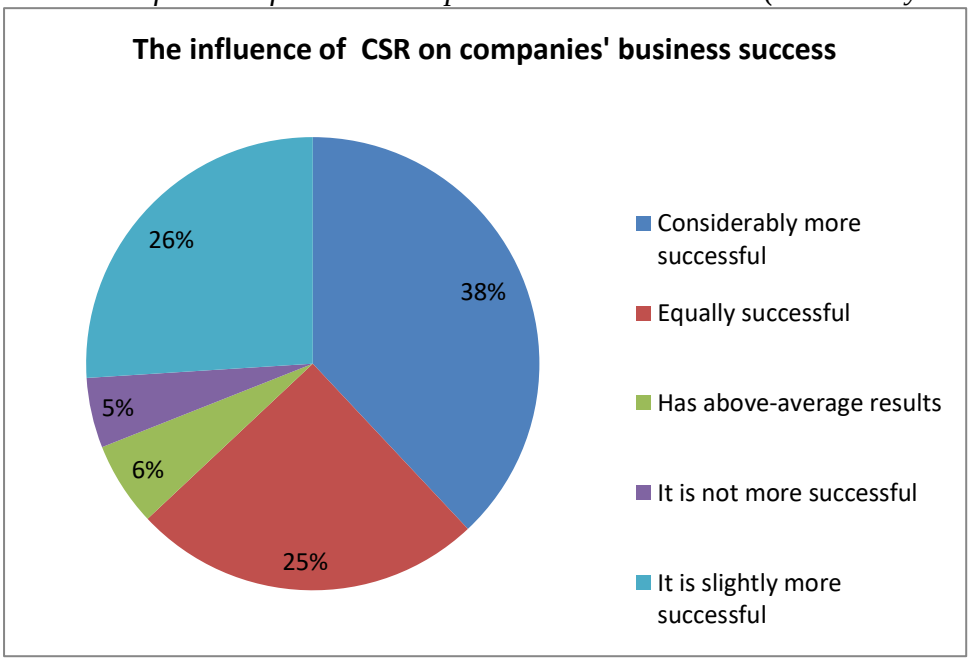
Reliability Statistics

Cronbach's Alpha	N of Items
0,913	9

High reliabilities of the type of the internal consistency were not only obtained for the variable of corporate social responsibility, but also for the variable of competitive advantage– which indicates high correspondence in giving estimations on individual questions concerning that same construct. The sample was made of 120 employees from 8 different companies from Bosnia and Herzegovina, by 15 respondents from each company. Most of the respondents are employed in large companies (with more than 250 employees) namely 52 of them (43,3%), then in middle size companies with 50 to 250 employees (n=38; 31,7%), whereas only 30 of them (25,0%) are employed in small companies (with up to 50 employees). From this number, the sample was made of 61 female employees (50,8%) and 59 male employees (49,2%). The largest number of respondents were in the age of 26-33 (41,7%), whereas the smallest number of them were in the age of 18-25 (5%). The largest number of participants has 1 to 5 years of service (35.8%), then 10-20 years of service (22.5%). There are those with 20 and more years of service (19,2%), 5-10 years of service (17,5%), whereas the smallest number of them has less than one year of service (5%). The majority of respondents have university degrees (50,8%), these are followed by those with high school degrees (21,7%), master's degree and doctorate (14,2%), whereas the smallest percentage are those with a college degree (13,3%). The second part of the survey questionnaire included questions connected to the corporate social responsibility of their company. First of all, the employees were asked a question about the knowledge of the role and meaning of the corporate social responsibility concept where 99 of all the respondents (82,5%) are familiar with the meaning and the role of CSR (corporate social responsibility) concept, whereas 21 employee (17,5%) stated that they are not familiar with the concept. The respondents were asked to estimate the influence of corporate social responsibility of their company on business results (in relation to the most significant competitors). The results were shown in figure 1.

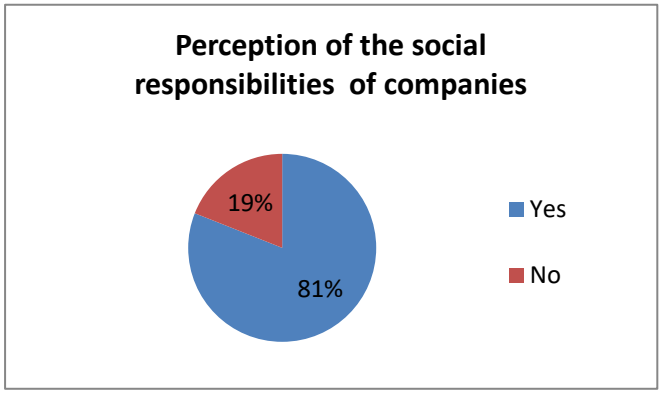
Figure following on the next page

Figure 1. The influence of CSR on companies' business success (Research by authors)



The largest number of employees considers that the company that applies the CSR concept in their operations is more successful in business compared to their most important competitors (38,3%), whereas the smallest percentage of them considers that they are not more successful (5%). 97 employees (80,8% of them) stated that they are familiar with socially responsible actions of their company in terms of donations, representations, sponsorships, and philanthropic activities; whereas 23 of them are not familiar with these (19,2%).

Figure 2. Perception of the social responsibilities of companies (Research by authors)



The significant differences were determined in number of people that do (not) know socially responsible actions of their company concerning the position in the company – middle and lower management and employees without managerial responsibilities (the differences concerning the position of the employees in the management and top management were not considered because of the small number of such employees in the sample). The percentage of the employees that know socially responsible actions of their company is larger in middle and lower management, whereas in case of employees without managerial responsibilities, there are a larger number of respondents who do not know these actions. Significant differences were determined in number if employees who do (not) know socially responsible actions of their company regarding the size of the company.

There is significantly smaller number of employees in smaller companies who know socially responsible actions of their company, i.e. larger number of them does not know such actions of their small companies – compared to the number of employees who do (not) know such actions in middle size and large companies.

Table 3. Application of social responsibility in different segments of company's operations (Research by authors)

Descriptive Statistics					
	N	Min	Max	M	Sd
Company invests in safety at work and health protection of the employees (Protective equipment for all the employees, education about SAW, general medical examinations).	120	2	5	4,40	0,666
Company operates in compliance with law and legal acts related to protection of the environment.	120	2	5	4,34	0,716
Company operates according to the principles of high ethical standards (Accuracy of all the reports, prevention of conflicts of interests, prevention of money laundering, bribery ban).	120	2	5	4,31	0,848
Company donates different organizations, clubs and associations whose projects raise life quality in the community.	120	2	5	4,27	0,764
Working conditions-salaries are good in company as well as material fees (Relationships with coworkers/associates, relationship with superiors, possibility of further education and training, possibility of promotion, salary and material fees).	120	2	5	4,18	0,718
There is an environmental awareness in company (Internal and external aspect, green placements, energy efficiency and usage of renewable energy sources, green business, and lectures on protection of the environment for the stakeholders).	119	1	5	4,03	0,853
Loan or project financing is present in company (Representation of practices of social responsibility in the basic company activities).	120	2	5	3,80	0,805
Transparency and reporting on CSR is present in companies (Annual report, social report, special category of CSR on website).	120	1	5	3,40	0,844

As it is evident in table 3, employees awarded the highest degree of applying social responsibility concept to the segment of Safety at work and health protection of the employees (average assessment of application amounts to 4,40). The lowest degree of applying social responsibility concept respondents see in transparency of reporting on CSR (average assessment amounts to 3,40). The other segments of corporate social responsibility were assessed with average assessment which amount in range of 3,80-4,34 which can be considered satisfying. Compliance with legal acts related to protection of the environment is relatively widely represented as well (average assessment of application amounts to 4,34). Further on there was a try to determine which are priority areas of the donations in companies of the surveyed employees. Respondents were given the possibility to choose (not more then) three of seven given areas of donation: encouraging excellence (education, talent, scholarships, innovations), humanitarian projects and associations (child care, care for people with special needs), culture and preservation of monumental heritage, health care, social solidarity, sports, protection of the environment. Summative data is shown in Table 4.

Table following on the next page

Table 4. Summarized overview of priority areas of donations in surveyed companies (Research by authors)

Priority area of donations	N	%
Education	**62**	**51,7**
Humanitarian projects and associations	**59**	**50,9**
Sports	**49**	**40,8**
Protection of the environment	**45**	**37,5**
Culture	**32**	**28,4**
Social solidarity	**29**	**24,2**
Health care	**13**	**10,8**
None of the above	**2**	**1,7**

The text below attempts to determine to which areas of the protection of the environment companies of the surveyed employees paid most of the attention (took over the responsibility), i.e. the employees were asked to choose (not more than) three of five given areas of the protection of the environment: preservation of natural values and resources, increase of renewable energy sources usage, rational energy sources usage, advancement of performance in the area of the protection of the environment and paper saving. Results of the research are shown in Table 5.

Table 5. Overview of the area within the protection of the environment for which the surveyed companies take the biggest responsibility (Research by authors)

	n	%
Rational energy sources usage	**34**	**28,3**
Advancement of performance in the area of the protection of the environment	**28**	**23,3**
Paper saving	**25**	**20,8**
Preservation of natural values	**16**	**13,3**
Increase of renewable energy sources usage	**12**	**10,0**
None of the given	**4**	**3,3**
Compliance with all the laws on protection of the environment	**1**	**0,8**

It is evident that employees indicate how their companies take the biggest responsibility for rational usage of energy sources, whereas the least responsibility is taken for compliance with all the laws on protection of the environment. The third part of the survey questionnaire contains questions relating to the competitive position and business results companies, compared to the most significant competitors, from the point of view of the surveyed employees. The elements of the competitive advantage: general advantage over competitors, sustainability of acquired advantage, corporate social responsibility, price of service, cost of delivering the service and customer satisfaction, were to be assessed by the employees compared to the most significant competitors, using assessment marks from 1 (considerably worse) to 5 (considerably better). The results of the research are shown in the table 6.

Table 6. The elements of the competitive advantage (Research by authors)

Descriptive Statistics					
	N	**Min**	**Max**	**M**	**Sd**
General advantage over competitors	**120**	**1**	**5**	**3,90**	**0,920**
Sustainability of acquired advantage	**120**	**1**	**5**	**3,87**	**0,888**
Corporate social responsibility	**120**	**2**	**5**	**3,93**	**0,867**
Price of the service	**120**	**2**	**5**	**3,91**	**0,830**
Cost of delivering the service	**120**	**1**	**5**	**3,86**	**0,892**
Customer satisfaction	**120**	**2**	**5**	**4,28**	**0,747**

Composite indicator of competitive advantage (made of elements of competitive advantage) is averagely assessed at 3,96 which can be considered satisfactorily.

Table 7. A composite indicator of competitive advantage (Research by authors)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Total	120	2,00	5,00	3,9583	0,65081
Valid N (listwise)	120				

Further on the respondents were asked to assess business results of the company compared to the most significant competitors, i.e. they were asked to use marks from 1 (considerably worse) to 5 (considerably better) to assess the sales growth, profitability and increase in market share compared to the most significant competitors.

Table 8. Business results compared to the most significant competitors (Research by authors)

Descriptive Statistics

	N	**Min**	**Max**	**M**	**Sd**
[Sales growth]	**120**	**1**	**5**	**3,98**	**0,917**
[Profitability]	**120**	**1**	**5**	**3,85**	**0,932**
[Increase in market share]	**120**	**1**	**5**	**3,98**	**0,907**
Valid N (listwise)	**120**				

As it is shown in Table 8, most of the respondents consider that their company has the best results in the segments of sales growth (3,98) and increase in market share (3,98) compared to the most significant competitors, these are followed by assessment that amounts to 3,85 for profitability growth. It is important to mention that there are no big differences in average assessments of the elements of business results. The following part holds overview of the main results of empirical research; those that are related to the analyzed relationship of corporate social responsibility and competitive advantage. The first thing that was observed was relationship of composite indicator of social responsibility and composite indicator of competitive advantage. Results are shown in Table 9.

Table 9. Relationship of composite indicator of social responsibility and competitive advantage (Research by authors)

Correlations

		CSR	Competitive advantage
Composite indicator of CSR	Pearson Correlation	1	0,612**
	Sig. (2-tailed)		0,000
	N	120	119
Composite indicator of competitive advantage	Pearson Correlation	0,612**	1
	Sig. (2-tailed)	0,000	
	N	119	119

*** Correlation is significant at the 0.01 level (2-tailed).*

As it is evident from the given table, results of the research show that there is positive connection of moderate intensity, between indicators of corporate social responsibility and indicators of competitive advantage, which shows to be statistically significant on the level of significance of 1%. It is indicated that the increase of the level of corporate social responsibility causes the increase of the competitive advantage of the company, and vice versa, the increase of competitive advantage causes the increase of social responsibility. Pearson r coefficient of correlation was applied, since the variables of corporate social responsibility and competitive advantage were formed from the larger number of statements and these are a continuous variable.

5. CONCLUSION

The majority of respondents knows the role and the significance of corporate social responsibility concept, and believes that the companies that apply corporate social responsibility in their business are more successful in their business operations compared to the most significant competitors. The research examined attitudes of the respondents on competitive advantage of companies compared to the most significant competitors, from which it is possible to conclude that there is a connection between the indicators of corporate social responsibility and the indicators of competitiveness. The limitations of the research are that some respondents, namely 17,5% of them, are not familiar with the corporate social responsibility concept at all, and that their attitudes cannot be relevant for research. There was a small number of top management respondents, 6,5% out of the total number, whereas most of the respondents were without managerial responsibility 57,5%. The research question was proved and confirmed, in support of the fact that the development of corporate social responsibility in companies, with their individual dimensions, is in a positive relationship with the development of the competitive ability of the surveyed companies. From all the aforementioned it follows that the success of the business is closely positively related to socially responsible behavior, which ultimately leads to the sustainable development and satisfaction of all the participants who are in different ways connected with the business of the surveyed companies. The condition for survival of modern companies in the market game is to provide greater value to society, and it can be achieved by applying this business practice.

In conclusion as it can be seen from the research it is recommended for all the companies to strive for socially responsible business practice in future.

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APPROACH TO ASSESSMENT OF THE EFFECTS OF LARGE-SCALE RESEARCH INFRASTRUCTURE UNITS AT THE ECONOMY OF RECIPIENT REGION

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ABSTRACT

Objects of Large-Scale Research Infrastructure represent the modern heavy-duty research centers which are financing at the international level. The most known of such objects, for example, is the Large Hadron Collider. Our research is devoted to studying of influence of such objects on sustainable development of recipient regions . A subject of our studying are representatives of scientific and technical, innovative, economic activity, regulators, participating in creation and use of results of Mega-Science, and also system of the relations between them. Under the influence of Mega-Science objects in the region there are essential transformations at the level of infrastructure, requirement in staff, in skill level, in scientific and educational system, in population life. Integration of infrastructure of Mega-Science into the Russian innovative system is also included into problems of our research. Units of Large-Scale Research Infrastructure become a part of the intellectual capital of the recipient region and they have to become a basis of development of economy of knowledge in regions. We also set the task to estimate the existing approach for Large-Scale Research Infrastructure development planning. It is obvious that the Large-Scale Research Infrastructure will influence the region economy. The evaluation of development of the region innovative infrastructure in the condition of Large-Scale Research Infrastructure requires use of modern analytical tools and adequate methodology. In the article we consider the possibility of application of the following approaches to an assessment of influence of Large-Scale Research Infrastructure: Costs-Benefits analysis, balanced scorecard, Regional and branch navigators of the intellectual capital, Multipliers of the intellectual capital and Analytical models of network economy

Keywords*: intellectual capital Large-Scale Research Infrastructure, , region knowledge based economy*

1. INTRODUCTION

One of the most important international trends in the development of science is a priority development of the research infrastructure of unique specialized mega-class installations (Megascience, known as Large-Scale Research Infrastructures [LSRI] in scientific literature) on which research projects are simultaneously conducted by dozens and even hundreds of scientists. As a rule, such facilities have the status of international resource centers for collective use, which makes it possible to concentrate the efforts of the world scientific community on the creation of unique scientific devices for solving priority scientific research tasks. Mega-class facilities constitute an infrastructure for the entire modern science development—both fundamental and applied. At present, such facilities primarily include sources of synchrotron radiation and neutron sources, free-electron lasers and nuclear physics installations. Lately, Russia has been actively involved in this process, taking an active part in construction and operation of such major international research facilities as the European X-ray Free-Electron Laser (XFEL) and the European Synchrotron Radiation Facility (ESRF).

2. PREREQUISITES FOR THE STUDY

For a number of Russian regions, formation of a modern research infrastructure is an extremely important task. Restrictions of the last 25 years, including financial ones, have led to degradation of part of Russian research centers. The restoration of the status of Russia as an advanced scientific power at the international level is associated with Russia's participation in the implementation of major international research projects in those areas, where high potential for Russian researchers' competitiveness remains. At the same time, the restoration of the research infrastructure at the federal and regional levels is facing significant problems. The first and the main problem, in our view, is the lack of a state program for the development of Russian research infrastructure, primarily—creation of new research infrastructures of the LSRI class, which can underpin the formation of new poles of competitiveness in Russian regions. Another problem is the lack of effective mechanisms for systematic and adequate resource support for the implementation of research programs and programs for the development of existing research infrastructure facilities at the state and/or regional levels and, most importantly, financial security within financial support for scientific activities in Russia as a whole. Figure 1 shows comparative data on expenditure on science in individual countries.

Figure following on the next page

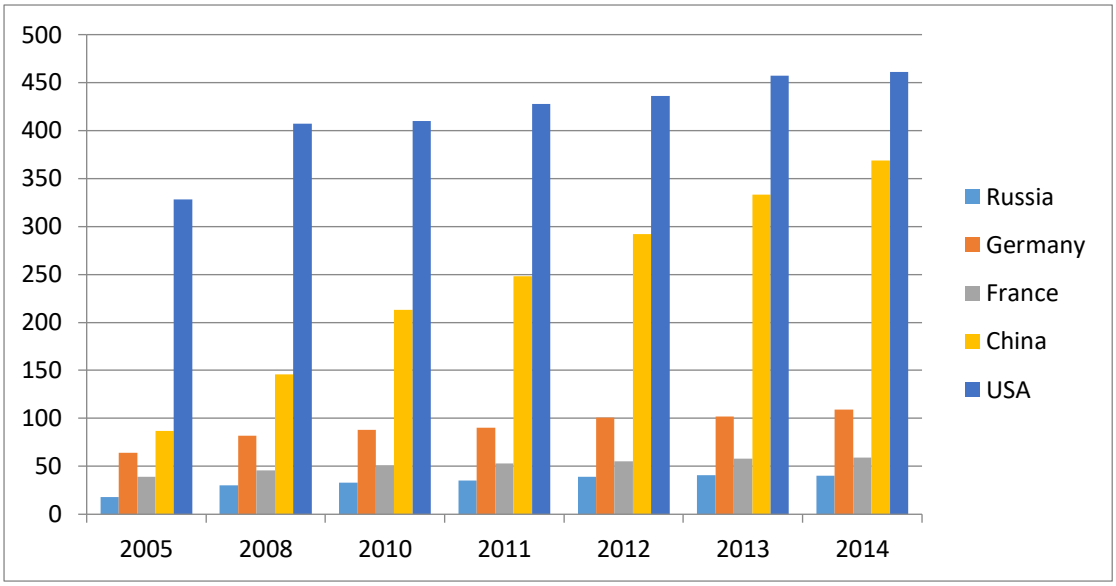

Fig. 1: Comparative data on science financing in individual countries, USD billion
Source: World Bank, authors calculations

As can be seen from the diagram above, although scientific research expenditure in Russia has almost tripled in 10 years, in terms overall expenditure these indicators are incomparable with those of world leaders in this area, especially China and the United States. The inadequacy of the expenditure is confirmed by the changes in the share of science expenditure in the gross domestic product (Fig. 2). Over the past ten years, this indicator in Russia has been maintained at about 1%, which, as is generally recognized, is not enough to enter the forefront in world science and innovation.

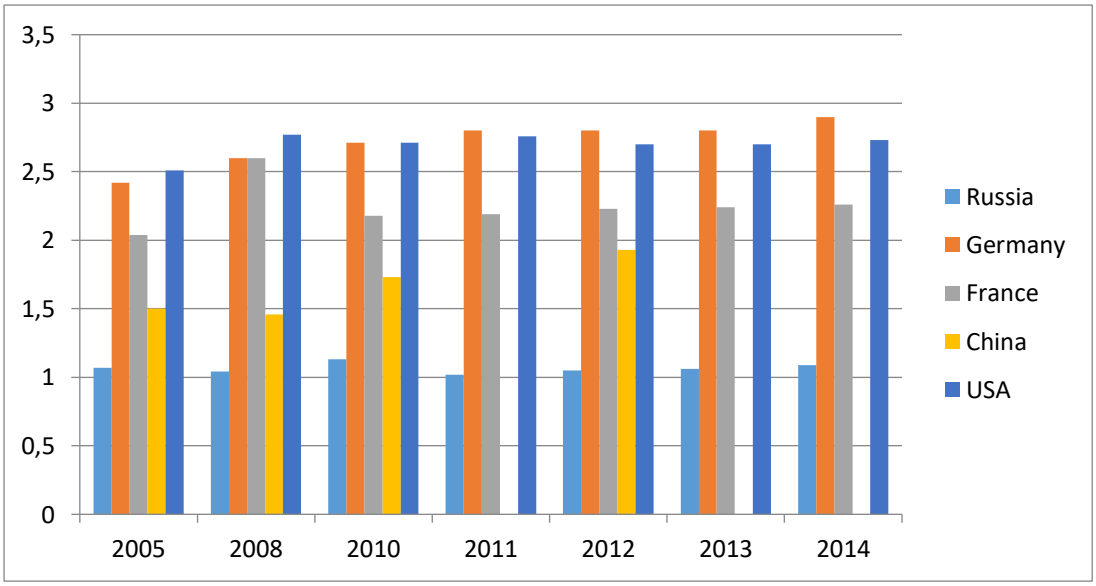

Fig. 2: Expenditure on science as a percentage of GDP in a number of countries, %
Source: World Bank, authors calculations

If we distance ourselves from the traditional assessment of expenditure in certain economic sectors, including scientific research, we can try to assess their place, correlating them with the expenditure on defense (the development and production of weapons and military equipment).

In this case, a comparative analysis for a number of countries shows the following results (Fig. 3).

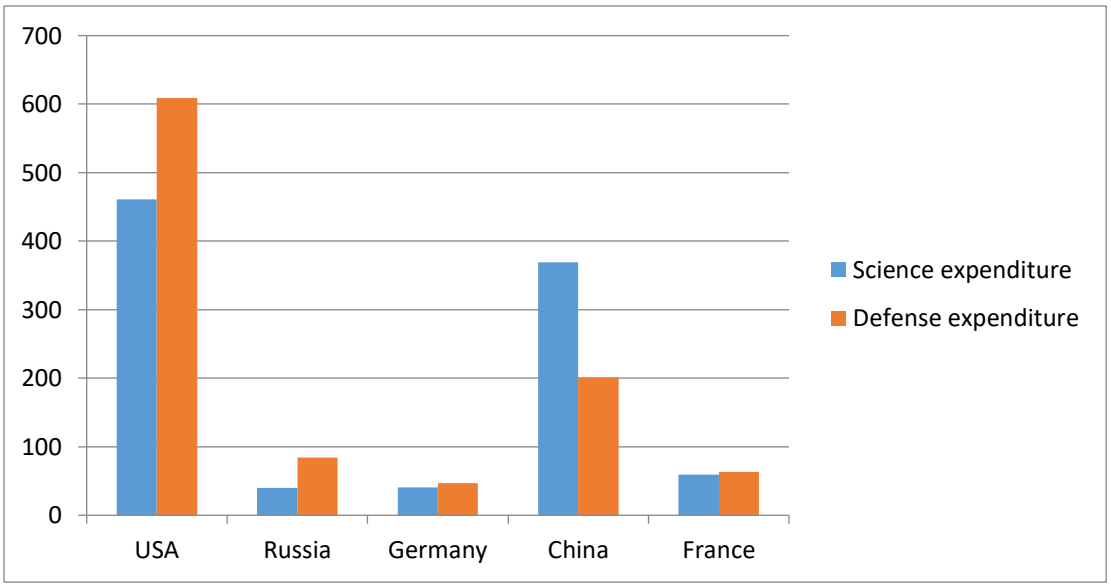

Fig. 3: Comparative costs of science and defense (2014), USD bn.
Source: World Bank, authors calculations

It can be seen that the defense expenditure (excluding the PRC) exceed the scientific research expenditure, and for Russia, almost a twofold excess of defense expenditure over science expenditure is partly due to the fact that a large part of scientific research costs are spent on defense-related budget items.

3. RESEARCH METHODOLOGY

The establishment and development of LSRI facilities is a rather widely discussed topic in the scientific community. Almost all researchers agree that LSRI installations are international research complexes, created on the basis of leading scientific centers. A detailed study of such facilities operation and an assessment of their efficiency was conducted by Massimo Florio and Emanuela Sirtori (2014), as well as by a number of other authors, including Acs, Z.J., Audretsch, D.B., Feldman, M.P. (1992), Bach, L. (2013), Carrazza, S., Ferrara A. and Salini S. (2014), Jaffe, A.B. (1989), Kay, J.A., and Llewellyn Smith, C.H. (1985), Lederman, L.M. (1984), Mazzucato, M. (2011) and many others. There are several more opinions related to the definition of Mega-science installations (projects), but all of them are closely related to the above. For further research, we think it is possible to reduce the parameters characterizing LSRI into a single system (Table 1):

Table following on the next page

Table 1: LSRI parameters and characteristics

Project definition	Projects for establishing research facilities, the creation and operational financial support of which goes beyond the capabilities of an individual state
Technological model:	Simultaneous research performed by dozens or hundreds of scientists
Economic characteristics:	High cost (volume of investments and maintenance), as well as obtaining the main effect as a scale effect, such installations are always international
Organizational form:	As a rule, such installations have the status of international resource centers for collective use.
Basic examples of existing installations	Sources of synchrotron radiation and neutron sources, free-electron lasers and nuclear physics installations.
Specific examples	European X-ray Free-Electron Laser XFEL, European Synchrotron Radiation Facility ESRF (both with the participation of Russia in construction and operation)
The source of growth in efficiency	*1. Quantitative growth.* Laboratory spectral measurements, usually conducted for several hours using laboratory facilities, can be performed on a synchrotron source of the Mega-Science level in minutes or even seconds. *2. Qualitative growth.* Most of mega-class installations are unique scientific equipment, on which it is possible to carry out research that is fundamentally unachievable even on the best laboratory-class samples.
The mechanism of use	A scientist physically moves from his institute to the mega-science center. For this, in particular, RFFI (Russian Foundation for Basic Research) grants (on mobility development) can be used, when any student, graduate student or young university scientist who signed the agreement can go to the mega-science center to carry-out experiments.
Social and scientific effect.	1) development of interdisciplinary research 2) relation between science and education 3) creating of conditions for young scientists

Approaches to the LSRI efficiency study originate in studies by such authors as Acs, Z.J., Audretsch, D.B., Feldman, M.P. (1992), Kay, J.A., and Llewellyn Smith, C.H. (1985), Adams, J. (1990), Arrow, K. (1962), Blaug, M. (1987). Boudreaux, D.J., Meiners, R.E. and Zywicki T.J. (1999), Hall, B. H., Branstetter, L., Crapon, B., and Mairesse, J. (1999). On early stages, most authors used classical costs-benefits analysis *(CBA)* methods based on cash flows discounting, as, for example, in the works of Hall, B. H., Branstetter, L., Crépon, B., and Mairesse, J. (1999). Later on, with the development of *CBA* methodology, works using a cost approach were published, for example, Florio, M. (2014b), optional methods (Biberacher, M., Hamacher, T., Shukla, R.P., 2004.), methods based on qualitative and quantitative scales, such

as in the works by Bach, L. (2013), Abt, H.A. and Garfield, E. (2002) and many others. The works of recent years focus on such parameters of efficiency as return on invested capital (Bach, L. (2013). Hall, B. H., Mairesse J. and Mohnen P. (2009) and others. In the course of our research, we used both the traditional LSRI assessment methods and the valuation models used in the regional economy, where the result of a major project implementation is expressed in terms of the innovative development of a territory and the development level of intellectual potential of a LSRI-recipient region. From the standpoint of the regional economy, LSRI facilities were addressed in the studies of Feldman, M.P. And Florida, R. (1994), Autio E., Bianchi-Streit, M. and Hameri, A-P. (2003), Cowan, R. and Zinovyeva, N. (2013), Salter, A.J. and Martin, B.R. (2000), as well as in the SQW Consulting repport (2008).

4. PRELIMINARY RESULTS OF THE STUDY

A set of methods, used to assess the effectiveness of LSRI facilities from the perspective of regional development is reflected in Table 2.

Table 2: Methods used to assess the effectiveness of LSRI facilities from the perspective of regional development

Method	Essence of the method
Costs-Benefits analysis	Comprehensive analysis of public costs and public benefits associated with LSRI project implementation. The main tools are the analysis of cash flows, NPV and ENPV (net present value, taking into account economic opportunities), options, etc.
The balanced scorecard system for the regional development purposes	Was developed after its active use in the corporate environment. It is a system of qualitative and quantitative scores of regional development linked to development goals and projections.
Regional and sector navigators of knowledge-based capital	Are the result of adaptation of KBC model to the tasks of assessing regional and sectoral knowledge-based capital. Currently, the models are being tested.
Knowledge-based capital multipliers	Are regional development models assessing the multiplicative effects of investments to intellectual assets
Network economy analytical models	Used for analysis of network structures and network interaction efficiency including simulation modeling methods.

LSRI facilities for a recipient region are a core element of the region's intellectual potential and should be considered as part of the region's innovation system and the regional economy development factor. The LSRI interrelations system within the region's economy is shown on the Fig. 4

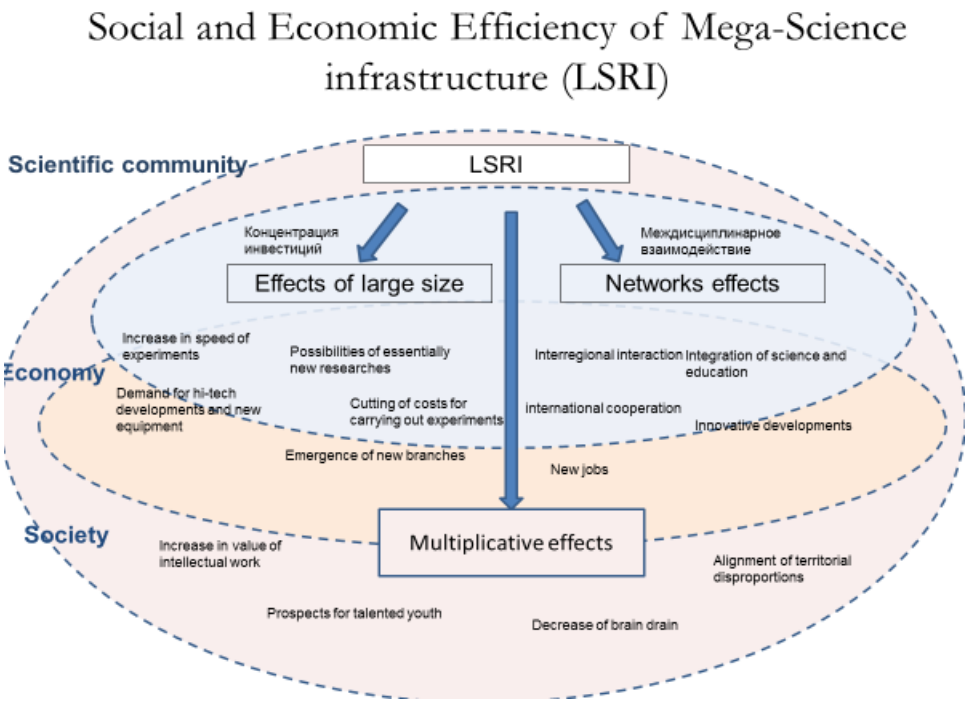

Fig.4 The model of the interrelation of LSRI and its influence on the efficiency of LSRI in the regional context

Our research and analysis of the above scientific sources allowed us to determine the set of effects associated with LSRI operation. These effects include:

- results in fundamental science, possible only with the use of these installations
- Results in applied science and further innovation activities in general
- Saving from scale—reduction of experiment costs
- Strengthening inter-disciplinarity research
- Strengthening relationships between science and education
- Development of system for knowledge transfer and diffusion into the production arena
- Creation of opportunities for the development of young scientists and training of researchers
- Creation of opportunities for the development of applied and fundamental regional science
- Creation of prerequisites for the rapid growth of scientific services and engineering sector
- Creation of prerequisites for the development specialized educational institutions
- Formation of conditions for the development of international scientific tourism
- Change in the share of knowledge economy in the regional economy

5. CONCLUSION AND FURTHER RESEARCH

The development of science in the international context will, in the coming years, focus on the creation of an international research infrastructure, primarily in areas of priority from the point of view of the entire mankind—space exploration, nuclear physics, synchrotron radiation sources and neutron sources, free-electron lasers and nuclear physics facilities. Creation of such facilities requires joint efforts of several countries due to their high cost. It is obvious, that regions will compete for the right to accept LSRI facilities, and thus attract large investments and lay down the foundation for the rapid development of the region's knowledge-based capital. Our further research will be mainly focused on studying the methods and approaches to assess the effects achieved, adequate to the specific functioning of LSRI facilities in the context of recipient-region economy, primarily taking into account emerging networks and systemic effects.

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PUBLIC INTEREST VS.THE INTEREST OF THE PUBLIC - HOW TO RECONCILE ECONOMIC IMPACT AND THE RIGHT TO INFORMATION?

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ABSTRACT

We find ourselves at a crucial moment in which the back of society becomes its true face, while the media's hybrid reality becomes an almost primary reality. The possibility to interact with users/public/readers where they directly participate in the publication of information, their creation, commenting and, perhaps even the most important, evaluation and ranking, violates the strictly defined relations of the current media practice in which the creator of the information transmits the message to passive mass users, and while doing so, dictates their view of the world. An illusion of controlled anarchy is created, in which a multitude of users create the value system, while journalists and editors adapt media announcements in order to achieve as much profit as possible for their newspapers. This completely neglects the educational role of the media that has given way to tabloidness, while profitability and pandering to the public become the basic imperative. The main role of the editor, which is the formation of criteria, no longer exists. The text is selected and evaluated according to the supposed and/or expressed wishes of the audience, and the adaptation of the text by the given criteria moves into the direction of superficiality and sensationalism. There is a disintegration of the role of editors in which they become managers, marketing experts and politicians or their role, diametrically opposite, transforms into a simple online administrator. Can the change of editor's role affect global social events or is the editor one of the professions that has already fallen into oblivion – that is the question this paper is trying to answer. The editorial balancing between the economic impact and the rights of all layers of society to timely, accurate and true information, or the struggle for survival of the media and the struggle for survival of true democracy is currently at a turning point that can have far-reaching consequences on society as a whole.

Keywords*: economic impact, editor, media, society development*

1. INTRODUCTION

In modern society and its media space, information becomes an unquestionable category, whereas the truth seizes to be so. The ethical category of media becomes possible only if it does not undermine the profitability of media disclosure. Using an exact example of the role of editors, we will try to show the reciprocal influence of the media and society through the analysis of the content of higher education textbooks and manuals on journalism, various scientific papers that correspond to the topic of editorial work and a survey among journalism students who are well aware of the hasty changes that they will soon initiate themselves. The society, or individuals, have always tried to control the media, and the media (especially mass media) have been trying to control the mass/audience or society[1].

[1] On this issue, among other things, we can recommend the work of Gordan Akrap, *Information Strategies and Design of Public Knowledge*, 2009. National Security and the Future. Vol. 10 No. 10. in which he states that 'Achieving a monopoly over information and domination over its use, particularly in crisis areas, is the basis for planning and managing information operations (IO) that want to shape the public knowledge of the target group

Thus, through history, from totalitarian to democratic societies, from regime to free journalism, the link between society and its authorities with the media and their governing structures has become increasingly strong and interdependent. But from the diachronic point of view, historical aspect of media influences has been the subject of many discussions, from Hitler to Trump[2] (we are not drawing a comparison), from the Inquisition to the present ... Informative media have created political opinion and played a decisive role in electorate, literary journals have created the taste of individual epochs, fashion magazines have dictated fashion and consumption, etc. over the centuries. And then everything changes: The value system creates a lot of users with their reactions or just views and clicks. Journalists and editors adjust media releases, primarily their headlines and leads, so that the information they now offer, and no longer provide, is as clickable[3] as possible. In online editions of individual journals, article leads and headlines that have not been viewed sufficiently in a given time period, are replaced by a sensationalist, inspirational version that does not have to be fully in line with content. Also, printed editions partially take over editorial policy (as far as it may be because of the necessity of a linear outline) of online editions and the situation is turning into an opposite one to the nineties of the last century when online editions were a copy of the printed issues.

2. INFORMATION AS A COMMODITY

Television news is increasingly becoming a commodity trade. Laws are there only to regulate the necessity and duration of those news. For this reason, it is of great importance both for science and for the profession to define the basic concepts of television journalism and to establish the professional criteria for the selection of news. While selecting the news there is a danger of transferring to commercial television, as is already the case with HTV entertainment shows. (Perišin, T. 2004, p. 91) In addition to the professional criteria commonly agreed between the various theoreticians of journalism (conflict /tension, surprise, progress /victory, achievement, disaster /destruction, defeat, consequences for the community, importance /prominent persons, novelty /oddness, bizarreness, human interest /emotional background - Harris, Leiter and Johnson or the influence, conflict, unusualness, importance, closeness, timeliness, audience - according to Ricchiardi, or the relevance, usefulness, interestingness) there is an extremely important role of the editor as an interpreter of these criteria, but also the one that forms the criteria according to the requirements of the profession, but, more recently, to the demands of the market[4].

(or more groups) in accordance with set goals and tasks in determined information strategies / ... / Planning and implementation of information operations created as a result of information strategies, with the aim of forming public knowledge in targeted audiences, is neither a novelty nor a special feature of the information age. Namely, information is used as a combat tool from the very beginnings of human conflicts, i.e. in the processes of imposing your own will on the opposing side. However, in the first phases, the information was only an aid in the conflicts dominated by the so-called kinetic lethal means, i.e. armed forces with associated weapons. In the information age, information becomes the primary means in the process of imposing own will on targeted audiences, while armed forces are used extremely rarely. Therefore, due to the need to effectively implement the goals from information strategies, the need for control and management is imposed not only of information content but also of information channels.' (Akrap, 2009, p. 79-81.)

[2] Trump is more than a symptom of manipulative infotainment and cultural decline: His political ascendency speaks to reality TV's long-established role in governing practices.(Ouellette, 2016, p.647)

[3] A journalistic jargon expression for a text that has a larger number of views or *clicks*

[4] The work of Geert Lovnik says more about this problem: *Is the Internet substitute for the sky*, published in the European Gazette No. 10 in 2005: 'The time of institutionalization, mega-linking, and security paranoia has come. These new conditions, inspired by the hyper-growth of the Internet economy, which jumps from boom to breakdown and backwards, will have for the moment an invisible effect on the sector of new media culture (art, design, education) that has so long experienced itself as a 'leader' ... / The interest of capitalists investing in business ventures for cultural content is almost zero, with little or no return on money or profit in sight' (Lovnik, 2005, p. 256.)

The market category becomes unavoidable due to the very simple closed circuit between money, quality and attractiveness of media publishing and audience. A media release that is more attractive to the public will bring more money to the publishing house (through the sale of the media product itself or the advertising space in it), which will invest its income into better journalists, funding research journalism, better equipment of texts and covers, paying informers and resources – an ideal version, or this will mean a bigger income for the owner who will insist on the attractive, colorful announcements of questionable authorship and ethics that succumbs to the lower passions of the audience – which is, unfortunately, a much more frequent version. 'Journalist practice is increasingly distancing itself from the predominant normative model, because serious press coverage (reporting aimed at responsible informing of citizens) is rapidly declining in contemporary times, whereas tabloid and popular journalism is growing. And its role is completely different because it aspires to have fun and create a consumer / ... / In the situation of a rapid turnaround of media from politically controlled to free, market-oriented media, the worst impact falls on journalistic ethics which remains behind the norms of market efficiency, because the decision on what will become the news depends on the analysis of costs and benefits, rather than the benchmarks of the journalist profession. As such, news is not in the service of public interest' (Valković 2009, p. 139-140). Media releases are increasingly referred to as media products, partly because of their growing number, which, besides prints and radio and television shows, now include all forms of online publishing, and there are really a lot of them, but partly because of market orientation.[5] Opposite the professional criteria Otto, Glogger i Boukes introduces a multilevel framework model of softening of journalistic political communication, which shows that the 4 most prominent concepts-(a) sensationalism, (b) hard and soft news (HSN), (c) infotainment, and (d) tabloidization, and, additionally, (e) eroding of boundaries of journalism-can be distinguished in a hierarchical model. By softening, we understand a metaconcept representing developments in political journalism that are observed on different levels of investigation, from journalism as a system (macrolevel) down to single media items (microlevel)[6].

[5] In a market economy, journalism is a job or industry and is therefore subject to pressures of work. Such anti-intellectualism and anti-professionalism are rooted in the idea of journalistic independence. If the independence is confused with neutrality, different publicity seekers and lobbyists who do not want to focus on what is real but want to call the shots, will inflict damage and cause many of the current problems in journalism / ... / If the media were able to make a clear distinction between the public interest and what the public is interested in, and if they developed a system of testing the reliability of journalistic interpretation, then journalism would fulfill its democratic function and show that there is a purpose other than profit in journalism (Žitinski 2010, p. 24)

[6] Over 30 years, a large body of research on what is often called 'hard' and 'soft news' has accumulated in communication studies. However, there is no consensus about what hard and soft news exactly is, or how it should be defined or measured. Moreover, the concept has not been clearly differentiated from or systematically related to concepts addressing very similar phenomena - tabloidization and 'infotainment'. Consequently, the results of various studies are hard to compare and different scientific discourses on related issues remain unconnected. (Reinemann, Stanyer, Scherr, Legnante, 2012, p. 221)

The educative role of the media disappears even from the national radio and television (which should not happen at all costs - especially if they are financed from a mandatory subscription or from the state budget), the right to information is used as a counteraction to the right to privacy[7], and public interest is replaced by infotainment[8] - all for profit.

3. THE ROLE OF EDITOR

In media literacy, the term editor is defined as an expert who plans, arranges and realizes media content by specific areas (external or internal politics, culture, sports, entertainment), oversees all phases of its production from preparation to publication. The editor decides what to offer to media users (readers, viewers, listeners), where to get the text and who will write it ... According to M. Sapunar, the editor is a journalist who edits the newspaper, show, programme. An experienced journalist who cares about optimizing newspapers or broadcasts in political, scientific and professional terms, and the functioning of the media largely depends on what the editor is like, and the editor-in-chief is a 'Conductor in the entire journalist orchestra' who plans and executes an approved programme and supervises all activities and is indirectly responsible for each article by each journalist. According to the Croatian Lexicon, the editor is 1) a journalist who edits and prepares to print daily, weekly and similar periodicals 2) a person who edits the material written for a particular publication, the work of one or more authors or a corporate body (community of physical persons, congresses, etc.). However, if we look at foreign literature, we find that the role of editor is far more extensive and complex, and we also find simple editorial manuals written by Steve Buttry, Edvard D. Miller, Mark D. Ludwig, or David Boardman who have also become available in Croatian-speaking area through the mediacentar_online portal. A major change in the role of editor happens, of course, due to the application of new technologies. According to M. Brautović there is a change of media organization, a change of relations between journalist and editor, and due to automation and speed, editors and senior journalists spend less time teaching young journalists. Online media require a different type of editor than classic media. Editors must be interactive and flexible towards users, rather than focused on tradition and one-way communication, which is a standard for newspapers, magazines and television. An online editor must possess a large number of skills and knowledge which are left to journalists, designers, photographers, cameramen and editors in the classical editorial office. If we look at job adverts for editors, we find out that today's editor should have the ability of lightweight written and oral expression, creativity, broad knowledge of general culture, specific knowledge related to published publication, ability to cooperate with people, skilfulness and patience, ability to quickly and independently make decisions, managerial skills, ability to easily make friends and computer skills (poslovi.infostud.com). The role of editors in the transition countries is fundamentally changing, and their managerial abilities come first. The transformation of the editor's role (still as a 'conductor of the orchestra' but now the commercial music orchestra) and his new perception in society was surveyed among journalism students at the University North. This research group seemed interesting to us because of their interest in the subject, knowledge of the basic professional and ethical settings of journalistic profession, communication mainly

[7] The problem is that reporters very often make conclusions and assumptions, especially from private lives of both public and/or private persons, just so that the final product (text) would be full of spicy details from the privacy, with the sole aim that the media consumer should notice it (Vilović and Krajina, 2008, p.202) Freedom of expression has been transformed into abuse of the media: Pandora's box has been opened and evil ghosts have come out – without the real possibility to establish normal surveillance. Evil ghosts turned into the wicked sensationalism, into yellow press of the biggest part of journalism, which ultimately damages the initiators of such media approach (Gavranović, 2009, p.22)

[8] Infotainment is considered one of the most important trends in today's journalism, especially in television. In recent years, a large volume of research has been devoted to this subject but there has been much less research on the ethical principles relating to this type of information. (Garcia, Campos-Dominguez, 2015, p. 73)

over social networks, or new forms of communication, but also because of their youth, since they, in essence, represent the future of journalism, so one can read from their attitudes what this future will look like. The research lasted from November 30, 2017 to December 22, 2017 and involved 65 journalism students. Students submitted their responses through online survey that was placed on Moodle e-learning system at University North and responses outside the study group were not possible. The survey was anonymous and voluntary and was not accessed by all students.

3.1. The research results

The students think that the team leadership is the most important feature of an editor (41.5%), whereas they give the same importance to the authority in the field of media specialization (24.6%) and the knowledge of the public/market (24.6%). This answer is particularly interesting since the same importance is unconsciously given to the profession and to the audience. Students consider political and communication skills important to a lesser extent (6.2%), while only 3.1% consider something else important. Finance and sustainability and knowledge of ICT are not considered important characteristics by students. Chart 1:

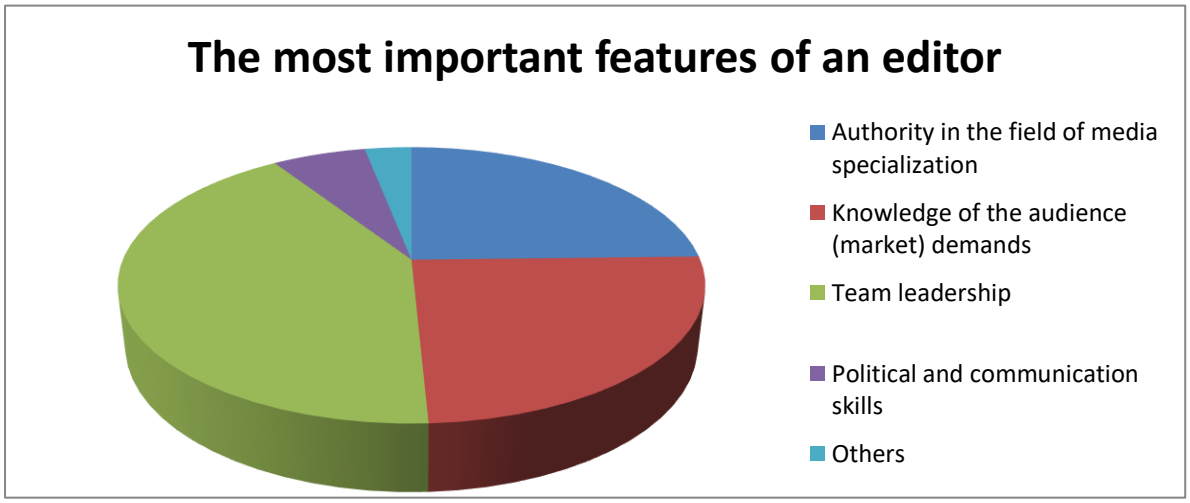

Chart 1: The most important features of an editor

66.1% of respondents consider that audience and sales/commercial interest form the criteria in contemporary media (33.8% of the audience and 32.3 sales/commercial interest). Politics (9.2%) and persons in power/particulate interest (10.8%) were considered to be less important for the establishment of criteria. Interestingly, only 13.8% think that public interest is an important factor for forming the criteria. Students consider that the educational role of media and profession are not parameters that form criteria in the media today. Chart 2:

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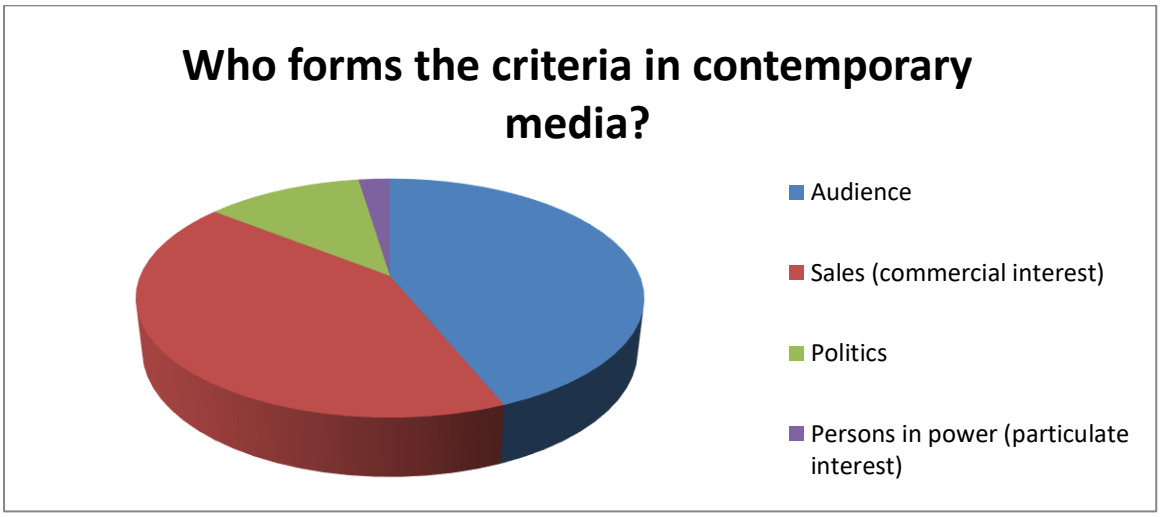

Chart 2: Who forms the criteria in contemporary media

There is no alleged dilemma at all between editor as a leader and editor as a sole administrator among students. Most think that editors should primarily be leaders (84.1%), few think (17.5%) they should be administrators, and 9.5% consider they should be something different. Thus, indirectly, respondents also give an account of the need for an editor as a person who will lead their team and take care of the quality of the newspaper as well as of the work and life of the journalists who they supervise. Chart 3:

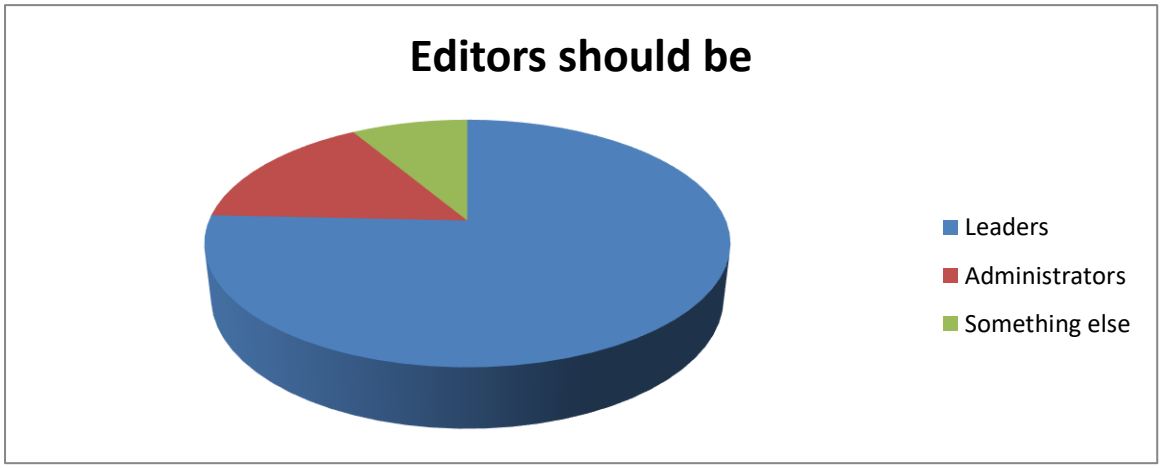

Chart 3: Editors should be

The respondents were very eloquent in the affirmation of their attitudes. Some of the offered reasons are: 'They need to know how to lead a team but also to meet market demands,' 'Because they need to know their goals and how to achieve them, and if they are not the right leaders, they will not be able to do it', 'They must know what's important for the whole editorial office and the market', 'Marketing experts', 'The editor must lead journalists towards objective journalism, researching of topics, and packing sensationalism in a journalistic way,' 'They need to lead their team and keep track of what journalists are doing and what's going on in the world and what the audience is looking for.' 'Since they are responsible for everything that is published and if they are leading the publishing house in the right direction they could achieve a lot,' 'Every team needs a leader to function well'. Also, students point out that 'They need to be more careful about what is being published', 'They need to know better what and how to publish and they should know how to end the plagiarism and fake news' and 'If the editorial board of a medium does not listen to the pulse of media users which they are targeting, the users

lose interest in the contents of this medium. The major state television is always in line with the current ruling political option. Editorial board needs to see social changes and promptly require of journalists to report on important social events and changes.', 'Editors should be more objective, independent of politics, and less aspirational to sensationalism,' ' They should set a better example of how to properly handle business and be fair.' Even though the majority of respondents that the most important role of editors is that of leaders, it is interesting to see the division of students' view in how this role should be realized and most of them emphasize the managerial role of the leader, while one part emphasizes the leader and editor as a necessary ethical corrective. In a similar way, the students cite and evaluate the latest trends in journalism with regard to the role of editor: 'Editors need to be more and more willing to be not only professional leaders but also experts in various fields. They need to know new media and trends and market demands', 'Editing content with regard to audience requests – smaller texts, larger photos, etc.', 'More and more yellow press that is constantly being sold though we are not interested in it, but it is constantly present, and that is bad.', 'Latest trends in journalism: shorter texts in newspapers and on websites, often inserting of photos and/or videos that describe the event listed in the headline, then social network connectivity such as facebook, twitter and others, in order to spread information as quickly and easily as possible. The latest trends are satisfactory when the content is true and ethical, and editors increasingly follow the public's needs to make their readability, tracking, clickability, or profit higher.', 'Shorter texts - I find it positive because it's easier to read, since we are burdened by too much information; more ads - I find it bad because they distort the aesthetics and become burden on the reader, especially on websites. Larger amounts of trivial texts - I find it bad because it ruins quality.', 'Editors must adapt, as much as possible, to the audience that is now overwhelmed by too many serious and elaborate topics. That is why today short texts prevail in the media, enriched with a multitude of photos or videos. This is not good because the topics are often too superficial.', 'Editors should not allow journalists to write news that is not really news or which do not serve the public interest.', 'The market determines the work of a website so the editor needs to know the market and the needs of the audience to attract sponsors'. To the question *Are the media making us stupid*?, as much as 89.2% responded with YES, only 4.6% with NO and 6.2% with 'I do not know'. According to Joseph R. Dominic, media should meet four categories of users' media needs, i.e. knowledge, leisure, inclusion in social activities, and withdrawal from reality, therefore it is obvious that the media no longer fulfill the fundamental need to create knowledge and the educational role of the media is almost non-existent which creates the impression that the media act diametrically opposed to what their true role is. Chart 4:

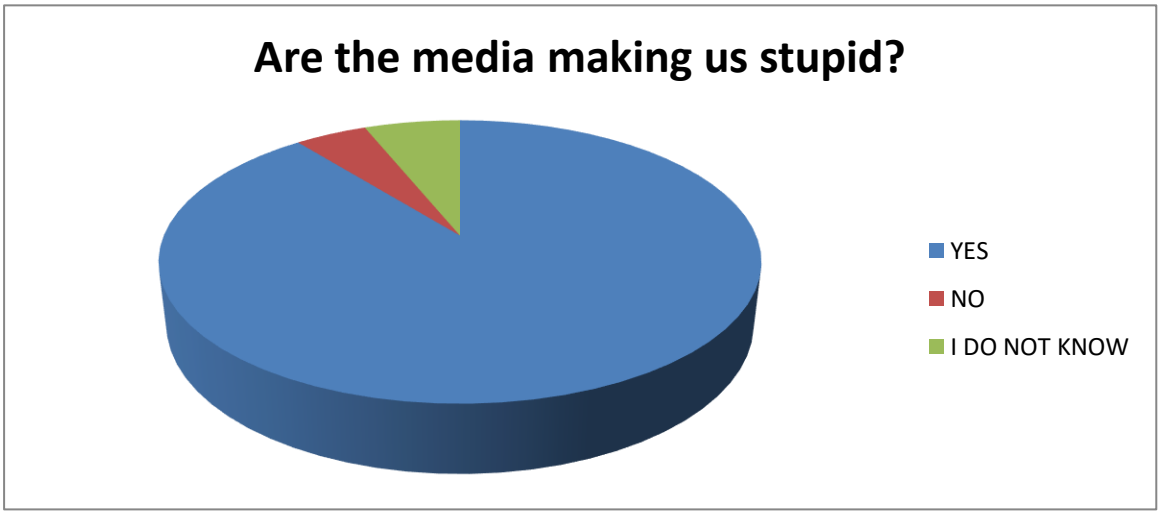

Chart 4: Are the media making us stupid?

3.1.1. Ethics and professionalism in the media

It was particularly interesting to investigate the opinion of students on the ethics level and professionalism in contemporary media and who they think is responsible for the current situation. The respondents consider editors (27.5%) to be the most responsible for the degradation of ethics level in the media, then the management/owners (27%), the audience (17.5%), politicians (14.3%), journalists (12.7), someone else (1.6%). It is interesting that nobody thinks that the level of ethics is declining. This attitude is also reflected in most scientific papers on the media.[9] Journalists are only in the fifth place among the groups responsible for this negative trend. Such low ranking of journalists' accountability could have been caused by the bias of the investigated group.[10] Chart 5:

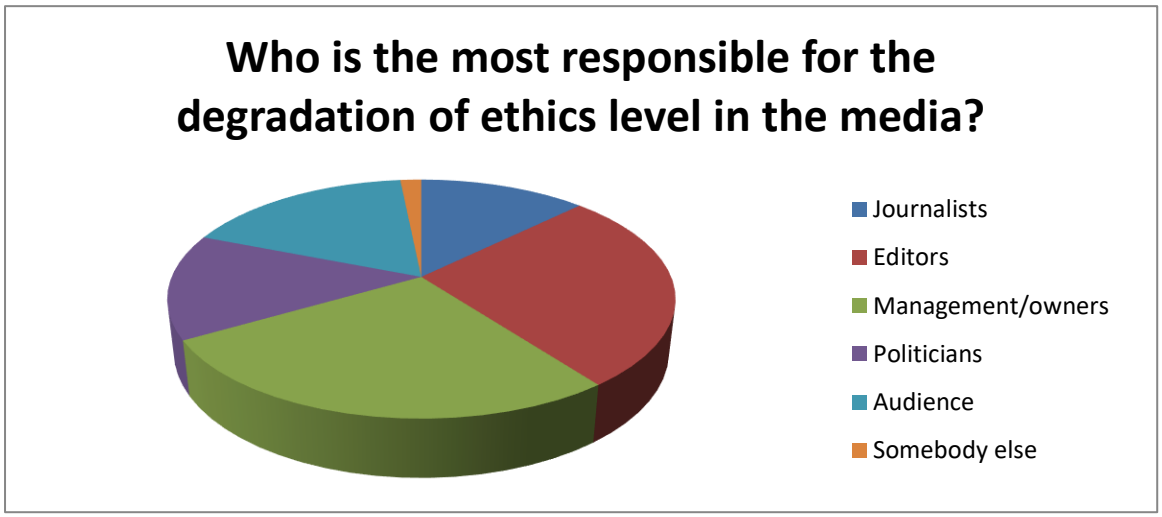

Chart 5: Who is the most responsible for the degradation of ethics level in the media?

For the degradation of the level of professionalism and quality in the media, the management/owners are considered to be the most responsible (32.8%). This time responsibility, but at a slightly lower percentage (29.7%) is shared by journalists, and after them the editors (18.8%). The following are the politicians (9.4%) and at the end the audience (6.3) and somebody else (3.1%)[11]. Again, nobody thinks that the level of professionalism and quality is declining.[12] Chart 6:

[9] Is it possible, in a chaotic, disordered society which defines neither obligations nor sanctions, to speak of democratic media which respect the rights of the weakest? News headlines can be made by anonymous, unknown people under the condition that they have done something very wicked, negative to themselves or others. Noticeable trends demonstrate an identity crisis in Croatian journalism: all media are beginning to resemble one another, and the editorial concept which encourages negative news stories is becoming dominant. Practice confirms the thesis that a journalist is not in the role of the subject bringing a news story, but rather a soldier of profit for the owners of newspaper publishing houses. If there is no subject, then there is no one to bear responsibility or suffer sanctions, and consequently there is no ethical journalism.

[10] Journalists have a more positive perception of their work than does the public./…/ Findings indicate that newspaper journalists give significantly higher marks to their performance on the tenets of good journalism than do members of the public" (de Zuniga, Hinsley, 2013, p. 926)

[11] Many authors in Europe and the USA claim that commercialization and competition in broadcasting lead to a downgrading of political information and, even worse, to a crisis in political communication highlighted by the increasing reliance of television news media on entertainment formats. (Brants, 1998, p. 315

[12] Journalism exists so as to provide values to its users. In this regard, journalism is more than a skill. If journalism only promotes its commercial goal while it avoids obligations towards public interest, it shall not fulfill its purpose. The true essence of journalism cannot lie in the trivialization of social life which industrial journalism falls into due to the lack of prudence. Journalism must rise up to its own professionalism by expanding its activity to the service of public interest. (Žitinski, 2010, p.35)

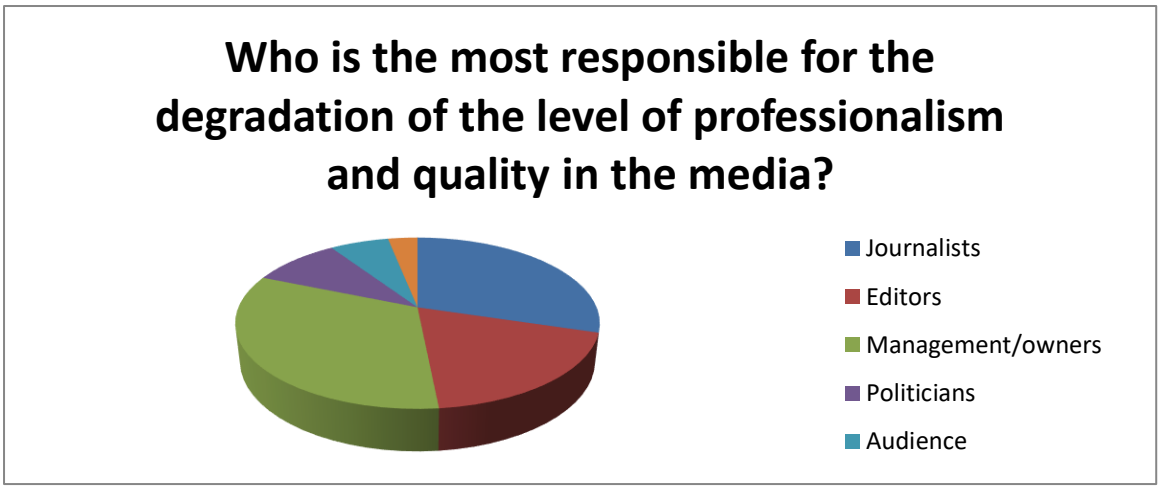

Chart 6: Who is the most responsible for the degradation of the level of professionalism and quality in the media?

Considering the type of media, according to this study, the most important role was the role of editors on television (43.1%), then in print (38.5%), much less on websites (16.9%) and it is completely unrecognizable on the radio (0%). Such results indirectly give the perception of the importance of journalistic content in individual media, although it is quite surprising that the role of radio editors is neglected, probably because of prevailing of music content over journalistic content. Such results indirectly give the perception of the importance of journalistic content in individual media, with a large predominance of press and television.[13] Chart 7:

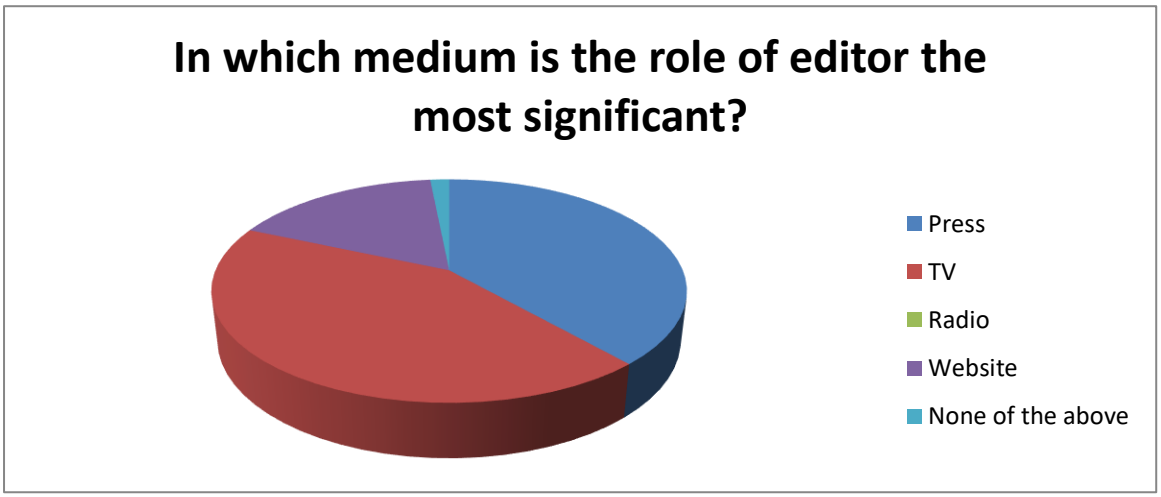

Chart 7: In which medium is the role of editor the most significant?

3.1.2. The role of editors and the future of journalism

It seemed extremely important to ask the journalism students a question of how editors can improve the media space. The responses were very diverse: 'By selecting more quality content, more serious topics, demanding content which meet the standards of professional journalism ',

[13] Print journalism has long been seen as a key institution of democratic politics, serving to enhance transparency, provide a forum for debate, and facilitate public participation. Instead, television journalism, particularly in its commercial form, has often been seen more negatively, as a form of infotainment that contributes little to the functions of journalism as an institution of democratic citizenship. (Hallin, Daniel, Mellado, 2018, p. 24)

'By knowing the audience and publishing interesting content', 'By maneuvering the quality of journalists' work and the way they work against expectations of the public and public interest', 'Editors need to know the demands of the audience and accordingly they must produce quality media content', 'Acting in accordance with public interest. They need to foster the educational role of the media, impartiality, truthfulness and data verification. They also need to allow journalists to develop their own style and they should not try to make their own tiny inferior army, or their own copies', 'By insisting on the importance of informing the public rather than insisting on entertaining the public,' 'By choosing quality content, requiring that the language level is maintained high, choosing topics that will be useful and interesting to readers, reducing the number of ads,' 'By choosing quality themes, insisting on maximum objectivity and professionalism, putting in the forefront the good, high-quality topics and avoiding yellow press', 'By giving journalists greater freedom, not by resorting to sensationalism (at least not to a great extent),' 'Through professionalism and ethical standards certainly. They should strive for truth and objectivity and not be subject to lies and gossip', 'They simply have to start respecting the journalistic profession, codex, ethics, principles,' 'By seeking important news and attracting audiences without sensationalist headlines and clickbaits.', 'By encouraging journalists to more quality and better work and researches,' 'They should publish news more important than the outfits of celebrities or yellow press,' 'By respecting ethical codes, giving more space to real-world news based on facts and less space for comments and news that are of no significance and serve only to fill the gaps.' It is extremely important that journalism students point out the importance of ethical journalism, but it is questionable how much they will stand by such principled attitudes when they find themselves in the media market. Also, since the study was conducted through the e-learning platform at University North, it is possible that the students gave the answers they thought would be expected of them, even though the survey was anonymous and voluntary. Under pressure from different interpretations of the future of journalism, we asked the respondents how they see the future of editorial work. Again, we received very interesting answers: 'The future of editorial work is likely because the media with good editorial policy will survive.', 'They will face more and more sad choices about which trash news to release in the public, rather than the content that is better. Likewise, according to the requirements of the audience, the same contents will have to be more adapted to entertainment, and less to information or (God forbid!) education', 'Editors have more and more work because of changes that are happening in the journalist's profession and they have to please the audience.' , 'If this trend of editorial work continues (I mean editors who yield to politicians and persons in power, rather than public interest), editorial positions will no longer make sense, and the editors will no longer have the authority over their team, or journalists.' , 'Because of the faster circulation of information, i.e. the need for it to be published more quickly, the editors often do not see the contents, they do not check them and therefore their role may be questionable in the future.' , 'It will be equally important, because the media is a source of profit and people will always need information mediators, and those who will organize information well and make it attractive to read.', 'The editors' decisions in the future will to a large extent depend on the wishes and needs of media owners, who are often associated with politics. There are no completely independent editors today, and it is hard to believe that this could change in the future.', 'Difficult. They have to decide for themselves whether to continue to strive for profit or serve the public.'

4. CONSLUSION

The world of information and the media is turbulently changing, and the commercialization of the media space has greatly damaged the credibility of the media. Treated as a commodity, the media product (and its authors) is beginning to lose the role of the protector of public interest and begins to offer what the public wants, putting the commercial interest in the first place.

The role of editor in this process becomes marginalized and he loses his most important function of forming the criteria that is taken over by the audience and the profits. However, through such a process and the media product - commodities are beginning to lose their quality, which the audience begins to be aware of, and media theoreticians have been warning of it for a long time. By examining the opinions of journalism students, that is, the journalists of the future, we find that they believe that the editor must be the leader of his team and the ethical corrective, who will help the survival of high-quality media, although they predict that editors will have to endure a long and difficult struggle to achieve this goal. The authors of this paper can only agree with them.

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THE IMPACT OF SYRIAN REFUGEES ON THE TURKISH LABOR MARKET

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ABSTRACT

The civil war in Syria has destabilized the whole Middle East along with neighboring regions. In this respect, the impact of Syrian refugees on Turkish labor market is one of the most important contemporary issues discussed in Turkey. This issue has both political and economic significance. Deriving from this point, the aim of this study is to research the empirical relationship between the Labor Market Indicator (LMI) and the growing number of Syrian Refugees in Turkey (RS) by using time series analysis. The data employs monthly data for the period from January 2012 to August 2017. Results of the ARDL bounds test suggest that the Labor Market Indicator and the number of Syrian Refugees are in a long-run relationship. The Gregory-Hansen cointegration test with a structural break confirms the robustness of the ARDL bounds test of cointegration. The Kalman filtering approach was designed to investigate the dynamic relationship between the Labor Market Indicators and the growing number of Syrian Refugees. The results show that the increase in the number of Syrian refugees negatively affects the Labor Market Indicator in Turkey, which implies that the inflow of Syrians has negative effects on labor market outcomes such as employment and unemployment in the country. These results also confirm the postulation of general labor migration theory, which holds that an influx of refugees negatively affects labor market outcomes in the harboring country.
Keywords: Kalman Filtering Approach, Syrian refugees, Turkish Labor Market

1. INTRODUCTION

The Syrian refugee crisis started in 2011 as a result of the political unrest and civil war in the country, which prompted a mass exodus of people to different countries. The number of refugees escalated when the radical group called Islamic State in Iraq and Syria (ISIS) claimed control over large populated areas in Syria (Işıksal, 2018b:91).Turkey shares an 822 km long border with Syria, which renders it vulnerable to the unprecedented entry of Syrians into the country. Another factor that has made Turkey a popular route for Syrian immigrants is the waiving of visa requirements between the two countries in 2009 (Işıksal, 2018a:20). Consequently, the refugee problem has become a considerable social and economic burden for Turkey with the arrival of at least three million Syrian refugees. Deriving from these points, this study analyzes the effects of the inflow of Syrian refugees on labor market outcomes in Turkey such as employment, unemployment and the labor participation rate. According to the UNHCR, the majority of Syrians entering Turkey are unskilled and middle-aged. Therefore, it is only possible for them to enter the informal sector in Turkey, which increases the competition for jobs in the unskilled labor market. It is virtually impossible for the Syrian refugees to have direct access to the formal sector, because they do not have the required skills and educational

qualifications that would make them eligible to apply for work permits. Furthermore, Turkey's immigration policy does not provide refugee status to individuals arriving from non-European countries, which is an additional disadvantage for Syrians. The challenge for Turkey is to determine how these Syrians can be successfully integrated in a manner that does not have a negative impact on the employment status of the domestic labor market, while still increasing access to jobs for the Syrians. The International Labor Organization (ILO) has been observing the challenges facing Syrians in Turkey and has found that Syrians who are privileged to work earn approximately $250 per month, which is the equivalent of 900 Turkish lira. This is significantly lower than the official minimum monthly wage, which is stipulated to be around 1,650 Turkish lira per month. This is because employers prefer Syrians as they earn less and work longer hours compared with their domestic counterparts. This threatens the balance of the labor market given that there could be an increase in unemployment among native workers if employers decide to replace them with Syrians. Although studies on the effects of forced migration on the labor market have been conducted, the findings of these studies have not been able to definitively determine the type of effect that such migration has. This is simply because either there is no access to data regarding the refugees and their working conditions in the labor market or the data are of insufficient quality based on the methods of data collection. On the other hand, the economic theory postulates that the entry of immigrants into a country negatively affects natives, because there is increased competition for jobs. This also results in unemployment among domestic workers and decreases the wages of those who successfully keep their jobs. In cases where there have been negative effects on the natives, the inflow has largely affected those in the informal sector and not those in the formal sector. Another noteworthy point is that the focus of previous studies has been how the inflow will affect the natives, while completely ignoring how the immigrants cope in terms of integration and the access to jobs when entering a host nation's labor market. In the present study, empirical research is conducted using the Kalman Filtering approach to predict the impact of the Syrian Refugees on the Turkish Labor Market. The rest of this paper is organized as follows: Section 2 is literature review, Section 3 is data and methodology, Section 4 presents the results and discussions, and last section concludes the paper.

2. LITERATURE REVIEW

As a general study of refugees-labor market outcomes, Basu (2016) studied the economic implications of the inflow of immigrants by identifying both the negative and positive effects on labor market outcomes. The study found that the inflow of refugees could increase the strength of the labor force and could also provide skills that are lacking in the host nation's labor market. Additionally, it was stated that the inflow of immigrants could have a negative impact on wages. Dustmann et al. (2008) explored the cost and benefits of immigration on a hosting economy with a particular focus on wages and employment. Previous studies, such as Grossman and Hart (1982), have assumed that labor is categorized into immigrants and natives, stating that an immigrant cannot substitute a native and vice versa. Altonji and Card (1991) viewed skills as the level of educational attainment, Card (2001)perceived skills based on the type of occupation and Borjas (2003)stated that skills are both the level of experience and educational attainment. The results of Dustmann et al.'s study identified that immigration affects unskilled workers more than skilled workers. The European Social Survey (2005) showed that average wages only declined in areas with large concentrations of immigrants, which subsequently increased unemployment in those areas. They also emphasized that the immigrants only worked in low skilled and low paying jobs, with no record of any formal employment. In terms of native unemployment, they noted that natives would only lose their jobs if they have similar skill sets to the immigrants.

In regard to the studies that have specifically addressed Turkey, the study by Del Carpio and Wagner (2015) for the World Bank examined the effects of the entry of displaced Syrians into the Turkish labor market, with particular emphasis on the informal sector. Data was based on the number of displaced Syrians living in Turkey at the time and the labor force survey (LFS). The results showed that there was an increase in unemployment among natives in the informal sector, while there was a surge in job opportunities for men with no significant level of education. Unskilled workers in the Turkish labor market experienced increasing unemployment and declining earning opportunities in the informal sector. Similarly, Massimiliano and Samia (2015) indicated in a World Bank report that while the Syrian refugees in Turkey working in the informal sector have actually taken jobs from natives, they have also contributed positively to the labor market by increasing access to formal non-agricultural jobs, which has led to growth in the average wages of the natives. Akgündüz et al. (2015) studied the impact of the influx of Syrian refugees on the Turkish labor market. Data on the number Syrian refugees in Turkey was sourced from the United Nations High Commission for Refugees (UNHCR). The results showed that there was a general increase in price levels, which meant that the purchasing power of wages in areas where the Syrian refugees were concentrated would drop. It was also revealed that there was a significant effect on native employment in the local labor market.

3. DATA AND METHODOLOGY

3.1. Data

The aim of this study is to determine the long-run relationship between LMI (Labor Market Indicators) and LRS (Syrian Refugees represented in natural logarithm).Data were retrieved from the Turkish Statistical Institute (Turkstat), the Turkish Central Bank, and the United Nations High Commission for Refugees Syrian Response Database for the period between January 2012 and August 2017 on a monthly basis. The number of Syrian refugees is denoted by LRS and it is represented in the natural logarithm. Labor market indicators include Employment Rate and Unemployment Rate. In this study the labor market indicators are used compositely in that all variables are summed and compared to the total population.

3.2. Hypothesis

This study hypothesizes that Syrian Refugees could be determinants of the Labor Market Indicator. Thus, the equation could be formulized as:

$$\mathrm{LMI}_t = f(\mathrm{LRS}_t) \quad (1)$$

In Equation (1), it is assumed that there is a long-run relationship between Syrian refugees and the Labor Market Indicator.

3.3. Unit root tests with structural break

The unit root tests that take into account any structural break are employed in this study, such as Perron-Vogelsang (1999), Zivot Andrews (2002) unit root tests with one structural break and Clemente-Montanes-Reyes (CMR) (Clemente et. al.1998) with two structural breaks.

3.4. Bounds Test Approach

To find the long-run association between the variables, the bounds tests is employed by using the Autoregressive Distributed Lag (ARDL) approach that was proposed by Pesaran, Shin, and Smith (2001). The major advantage is that the regressors could be of different order of integration; thus, they could be I(0) or I(1), although they cannot be greater than order one. These tests are based on F-statistics derived from the ARDL approach.

The critical values are provided for the lower bounds and upper bounds. There are three scenarios for the F-test proposed by Pesaran, Shin, and Smith (2001), namelyF_{III}, $F_{IV,}$ $and\ F_V$. When calculating the F-statistics, if it falls below the lower bounds this means that the null hypothesis of no long-run relationship cannot be rejected. However, if the F-statistics falls between the lower and upper levels, it means that the results are inconclusive. Finally, if the results are higher than the upper bounds, it means that the null hypothesis can be rejected and there is a valid long-run association between the variables (Pesaran et.al. 2001).

To perform the bounds test, the error correction model (ECM) should be created:

$$\Delta LMI_t = a_0 + \sum_{i=1}^{t} b_i \Delta\, LMI_{t-i} + \sum_{i=0}^{t} y_i\, \Delta LRS_{t-i} + \sigma_1 LMI_{t-1} + \sigma_2\, LRS_{t-1} + \varepsilon_{1t} \quad (2)$$

where Δ is the first difference operator, *LMI* is the dependent variable, *LRS* is the natural logarithm of the independent variable; *t* is the maximum number of lags, and ε_{1t} is the error term of the model. *LMI* is the dependent variable, and the null hypothesis of no co-integration, H_0=$\sigma_1 = \sigma_2 = 0$; it is tested against the alternative hypothesis, $H_a \neq \sigma_1 \neq \sigma_2 \neq 0$. To enhance the robustness of the ARDL bounds test, the paper employs the Gregory-Hansen cointegration. The main advantage of this test that it includes cointegration with one structural break (Gregory and Hansen, 1996) was applied. The structural change can take several forms; a simple case is that there is a level shift in the cointegration relationship, which can be modeled as a change in the intercept, where the equilibrium equation has shifted in a parallel fashion it is called as a level shift model denoted as follow:

$$y_{1t} = \alpha_1 + \alpha_2\, \varphi_t + \alpha^{T}\, Y_{2\,t} + \varepsilon_t \quad (3)$$

where α_1 is the slope coefficient, α are held constant. This implies that the equilibrium equation has shifted in a parallel fashion, ε_t is assumed to be *I*(0) error term φ is dummy variable.

3.5. Dynamic Kalman Filter Approach

After finding the association between Labor Market Indicator and the Syrian Refugees, this relationship is dynamically tested by using the Kalman Filtering Approach to reflect the time-varying relationship between LMI and LRS. The Dynamic Kalman Filtering approach is based on the estimation of the statistically significant relationship among the time series variables Labor Market and Syrian Refugees. The Kalman filter is a recursive linear filter used to achieve the conditional density of observations by using the Bayes' Theorem (Pasricha, 2006). In order to predict the following period's value of the unobservable variable, the Kalman Filter uses current observations and the realized value for the next forecasts. Therefore, new information is used to upgrade the model estimates. The Kalman filter approach assumes the form of state space identification. The general model of a linear state-space equation indicating the dynamics of a system is:

$$y_t = c_t + Z_t a_t + \varepsilon_t, \quad (4)$$

$$a_{t+1} = d_t + T_t a_t + \upsilon_t, \quad (5)$$

In the present research a_t is a 2 x 1 vector of unobserved state variables, c_t, Z_t, d_t and T_t are conformable vectors and matrices, and where ε_t and ν_t are vectors of mean zero and Gaussian disturbances, respectively. Eq. (4) states that the unobserved state vector $a_t$is expected to move over time as a first-order vector auto regression. The Kalman filter periodically estimates the parameters by updating the estimation by additional observation.

The Kalman filter is a repetitive algorithm which allows continuous updates of the one-step-ahead estimate of the state mean and variance are giving new observations. Provided with the one step ahead of state conditional mean, it is possible to formulate the one step ahead minimum mean square error estimate of y_t.

$$\bar{y}_t = y_{t|t-1} = E_{t-1}(y_t) = E(y_{t|}a_{t|t-1)} = c_t + Z_t a_{t|t-1} \quad (6)$$

Thus, the one step ahead prediction error is as follows

$$\varepsilon_t = \varepsilon_t|_{t-1} = y_t|y_{t-1} \quad (7)$$

and the prediction error variance provided:

$$F_t = F_t|_{t-1} = \text{var}(\varepsilon_t|_{t-1}) = Z_t P_t|_{t-1} Z'_t + H_t \quad (11)$$

In summary, the Kalman filter identification for this study is as follows:

$$LMI_t = a_0 + a_{1,t} LRS_t + \varepsilon_t \ , \quad (8)$$

$$a_{i,t} = a_{i,t-1} + v_{i,t}. \quad (9)$$

4. EMPIRICAL RESULTS AND DISCUSSIONS

4.1. Conventional Unit root and Structural Break Test Results

In the empirical methodology, the series has been tested for stationarity. Zivot-Andrews and Perron-Vogelsang unit root tests results with one structural break are reported in Table 1. CMR unit root test results with two structural breaks are reported in Tables 2. The results show all the variables are stationary at first difference, thus *LMI, lnRS* variables are integrated of order I(1).

Table 1 Zivot-Andrews and Perron-Vogelsang with structural break unit root test result

	ZA	BD		*PV*	BD
LMI	-2.366	2016m10	*LMI*	-2.597	2016m11
lnRS	-4.186	2014m3	*lnRS*	-3.509	2012m8
ΔLMI	-6.475 ***	2015m1	*ΔLMI*	-6.8027**	2000Q1
ΔlnRS	-6.630***	2013m5	*ΔlnRS*	-10.642**	2001Q4

Source: Authors' own calculations.

Table 2 CMR unit root test results with two structural breaks

	At level	BD 1	BD 2		At 1st difference	BD1	BD 2
LMI	-4.076	2014m11	2016m6	*ΔLMI*	-8.762**	2012m5	2013m2
lnRS	-6.618**	2013m11	2014m8	*ΔlnRS*	-9.507**	2013m3	2013m12

Source: Authors' own calculations.

Since the start of the new millennium, Turkey has recorded significant developments in terms of observed macroeconomic and fiscal stability, which has translated into stable employment growth and improved income distribution rendering it an upper middle-income country. The poverty level has more than halved during this period, urbanization has increased, many foreign

trade agreements have been signed and the country has developed with the implementation of well-structured laws and regulations according to European Union standards. Moreover, there has been significant growth in public infrastructure leading to increased access to public services. Turkey has also exhibited significant signs of recovery from the 2008/2009 economic crisis, particularly in terms of Gross Domestic Product (GDP) and Foreign Direct Investment (FDI) (Işıksal, A. et al., 70-71). Nevertheless, from 2012 onwards, Turkey experienced a decrease in development that was evident in its shrinking per capita income which was around $9000, significant growth in unemployment and inconsistent policy reforms. This demonstrated that Turkey was unable to sustain its growth momentum, mainly because the country's macroeconomic environment was unstable with stagnated growth in the European Region, along with the uncertain political climate of neighboring countries including Syria that has directly influenced the volume of exports and foreign direct investment. In this connection, the refugee problem has become a considerable social and economic burden for Turkey. Although the actual number remains unknown, it is estimated that at least three million Syrian refugees are now residing in Turkey, which means that the country is now hosting the largest number of Syrian refugees (Turkish Ministry of Interior, 2016). The Turkish authorities have also spent more US $25 billion on these refugees (UNHCR 2015),which has placed significant strain on the country's finances with increased social, economic and political demands. In other words, the Arab Spring revolts have developed into the "Turkish Autumn" (Işıksal, H. 2018c:214). The political atmosphere between 2015 and 2016 has not helped the chances of recovery. The elections held in June and August of 2015, the cabinet reshuffle in May 2016, and the failed coup attempt in July 2016 have further halted policy reforms. The economic growth rate was 6.1% in 2015, which decreased to about 2.9% in 2016.The second half of 2016 saw an increase of 11.3%Turkey's current account deficit due to a decline in the tourism industry. The volume of foreign direct investment inflows has also reduced because of domestic insecurity, macroeconomic imbalance, and the unstable global political climate. In the third quarter of 2016, Turkey experienced its worst growth rate in over a decade; however, in the fourth quarter, there were signs of recovery as a result of increased private consumption and net exports. On the other hand, the labor market unemployment rate reached12.1% in November 2016, with a3.7%increase over November 2011, and it was Turkey's recorded highest unemployment rate in over a decade. The rate of joblessness among young people in the 15-24 age bracket of 15-24 was 21.6% as of November 2016, which was reminiscent of the figure recorded in November 2009.

4.2. Cointegration Tests and Kalman Filtering Approach Results

Bounds tests are performed to check for the long-run relationship between LMI and LRS. Critical values using F-tests are extracted from studies by Pesaran et al. (2005).

Table 3 ARDL Bounds test results

Model	Lag	F-statistic	Decision
LMI, lnRS	(3, 3)	7.699***	Co-integration exist
Bound Critical Value			
		I(0)	I(1)
Signif.	10%	3.02	3.52
	5%	3.62	4.16
	1%	4.94	5.58

Source: Authors' own calculations.

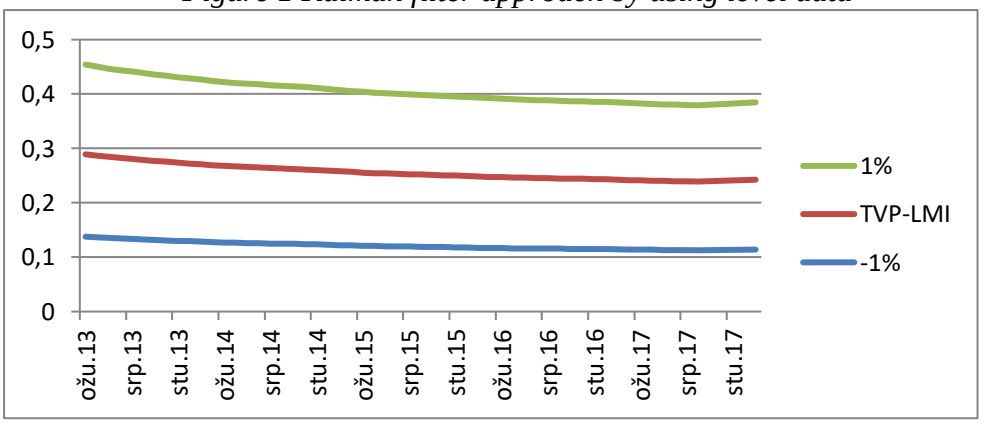
Table 4 Gregory-Hansen cointegration test with one structural break test results

At level	BD 1	t-statistic	5%
ADF	2012m10	-5.28**	-4.99
Zt	2012m10	-5.65**	-4.99

Source: Authors' own calculations.

According to Table 3, the F-statistics value is higher than the upper bound of the given critical values; thus, the null hypothesis of no-cointegration can be rejected. Therefore, it is found that there is a significant long-run relationship between LRS and LMI based on the analysis of the bounds test. The Gregory-Hansen cointegration with one structural break test results (Table 4) confirms the results of ARDL bounds test. After finding the long-run relationship between the LMI and LRS variables, this relationship is dynamically tested by using the Kalman Filtering approach to show the time-varying relationship between Labor Market Indicator and Syrian Refugees. When using the time-varying parameter (TVP), it is important to note that this parameter can change with every new observation (Koop &Potter, 2007). The Kalman filter approach was used to analyze the dynamic relationship between the Labor Market Indicator and Syrian Refugees by employing level data, as represented in Figure 1.The empirical results show that Syrian Refugees have a significant impact on the Labor Market Indicator. Syrian refugees have a decreasing impact on the Labor Market Indicator, which implies that the inflow of Syrians has negative effects on labor market outcomes such as employment and unemployment in Turkey. These results also confirm the postulation of general labor migration theory, which implies that an influx of refugees negatively affects labor market outcomes.

Figure 1 Kalman filter approach by using level data



Source: Authors' own calculations.

In summary, the empirical results prove that there is a dynamic relationship between the Labor Market Indicator and Syrian Refugees. The socio-political developments between January 2012 and August 2017 demonstrated that the Syrian refugees have a negative impact on the Turkish Labor Market and have increased unemployment rates.

5. CONCLUSION

Studying the effects of the entry of displaced Syrians on a host nation's economy is essential in order to develop a key framework to mitigate against the humanitarian crisis spiraling out of control. This study investigated the link between the entry of displaced Syrians on the labor market indicator in Turkey. The data on the number of displaced Syrians living in both countries and labor force indicators (Employment, Unemployment) was used to empirically analyze the link between the entry of displaced Syrians and the labor market in Turkey.

The study investigated the relationship between Labor Market Participation and Syrian Refugees for the period from January 2012 to August 2017. After testing for the stationarity by employing Zivot-Andrews and Perron-Vogelsang unit root tests results with one structural break and CMR unit root test results with two structural breaks the results show all the variables are stationary at first difference. The long-term relationship between the Labor Market Indicator and Syrian Refugees is investigated by using the bounds test developed by Pesaran and Gregory-Hansen cointegration test with one structural break. In regard to the results of the cointegration tests, it has been demonstrated that there is a significant long-run relationship between the Labor Market Indicator and Syrian Refugees. The Kalman filter approach also shows that there is a dynamic relationship between LMI and LRS, and LRS has a significant influence on LMI, particularly between January 2012 and August 2017. The majority of Syrians in Turkey works in the informal sector and is predominantly working illegally, which prohibits them from having access to work permits. This means that the Syrians are participating in the labor market in the informal sector, which is increasing unemployment among natives. The incentive for employers to hire Syrians is simply that the labor costs are significantly lower. The report by the ILO outlined that the Syrians working in the informal sector earn an average of USD 250 monthly, which is considerably lower than the minimum wage in Turkey. Another incentive for employers to hire Syrians is that they are willing to work longer hours than natives. It is clear that the Syrians have little or no access to the formal sector in Turkey, which is influenced by the fact that they are admitted into Turkey on a temporary basis and do not qualify for refugee status. Turkey's immigration policy only offers refugee status to people arriving from the European region. Since Syrians are arriving from a non-European country, this policy has prohibited them from obtaining access to work permits. Also, it should be noted that most of the Syrians are low skilled and are therefore unable to compete in the formal labor market. As a result of these facts, it could be suggested that the competition in the informal sectors will continue to escalate, thus increasing unemployment rates in Turkey.

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PROJECT MANAGEMENT MODEL OF NEW PRODUCT DEVELOPMENT

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ABSTRACT

This paper explains the usefulness of project management model for planning production preparation processes. A synthesis of issues of project management and production preparation processes is presented, and a conceptual model of concurrent design processes using the project management method is developed. The proposed model of planning production preparation processes enables improving the effectiveness and economic efficiency of new product development. The main assessment indicators of efficient project management in production preparation are: shortening the preparation time of new product development, rational use of resources, and reducing the risk of failure. The presented problem is one of the most significant elements of management processes concerning the manufacture of products, particularly under the conditions of unrepeatable and irregular production, which, to a large extent, is characteristic of small and medium-sized enterprises.

Keywords: *new product development, planning process, production preparation processes, project management*

1. INTRODUCTION

The course of a production process and its effectiveness depend on preparative actions undertaken prior to commencing production, known collectively as the production preparation process (Chapman, 2005; Brun et al., 2008). This process entails design and technological preparation, taking into account organizational (operative) planning (Laarhoven, Zijm, 1993). The main aims of production preparation are: elaborating designs of new products and their production methods, commencing production, and the continuous improvement of products. Production preparation is integral to the functioning of production companies, since it comprehensively shapes their technical and organizational level, affecting the economic outcomes of business activity (Toni, Meneghetti, 2000). Contemporary production preparation systems are characterized by a specific scope of works for the preparation of production processes (Baraldi, Kaminski, 2008; Pavletić, Soković, 2009). Recent trends in this scope include (Slack, Chambers, Johnston, 2007; Gustavsson, Wänström, 2009; Vasant, Weber, Dieu, 2008):

- progressing evolution of the notion of production preparation – currently, it comprises all activities leading to the preparation, maintaining and termination of production for a given product, as well as the design of processes governing processing, sale, and production process supply,
- emergence of concurrent (simultaneous) engineering (CE),

- progressing integration of works related to structural preparation, the design of production processes and their organization,
- increasing use of computer-aided systems in production preparation,
- use of new optimization methods and techniques, based on systems engineering (project management, cost engineering, modeling and simulation of processes, etc.),
- maintaining databases of previously designed production processes,
- extensive use of computer methods for production preparation, with the ensuing changes to process design methodology,
- application of modeling and simulations of structures, production processes and the production system.

Typical stages of production preparation include: elaborating technical and maintenance requirements and preliminary design principles, drawing up the preliminary draft and the engineering and construction design, building and testing a prototype, a test run and, ultimately, a production run. At this stage the information on the product is presented using technical design documentation. Such documentation describes the structure of the entire product, all its parts, all data necessary for technological preparation of production, technical specifications for acceptance, and the specifications of product operation, maintenance and servicing. It can include such design documents as: product assembly drawings, assembly drawings of units and subunits, working drawings, and operation and maintenance manual. The technological progress plan and the plan for technical and organizational activities constitute the basic elements of production preparation. Such plans outline tasks and means for achieving product competitiveness through decreasing production costs, ensuring the required ergonomics, safety, environmental friendliness, quality, reliability, as well as decreasing the costs of operation for end-users. Designing production preparation processes is necessary for planning the course of activities, labor intensity of works, their cost, as well as the subdivision of tasks among contractors. The subject matter of this paper reflects the emerging awareness in industrial practice of the need for planning production processes in environments concerned with single-piece and low-volume production, characterized by the lack of repeatability and regularity. The efficient use of companies' production capacities under the conditions of increasing competitiveness, dynamically changing sales market, increasingly shorter order and supply periods for the offered goods, has become essential over the last years. Despite this fact, relatively few research papers tackle the issues of project management with regard to developing new products, preparing for and commencing production. The aim of this work is to investigate the planning of production preparation processes using the project management method. Concurrent engineering is a work model based on the parallelization of tasks (i.e. performing tasks concurrently), which is sometimes called simultaneous engineering or integrated product development (IPD) (cf. Figure 1). It refers to an approach used in product development in which functions of design engineering, manufacturing engineering and other functions are integrated to reduce the elapsed time required to bring a new product to the market. The elaboration and application of the model of planning production preparation processes for a new product in accordance with the project approach entails the improvement of effectiveness and economic efficiency in the functioning of a company. The main indicators of efficient project management in production preparation are: shortening the preparation time of new product development, rational use of resources, and reducing the risk of failure.

Figure following on the next page

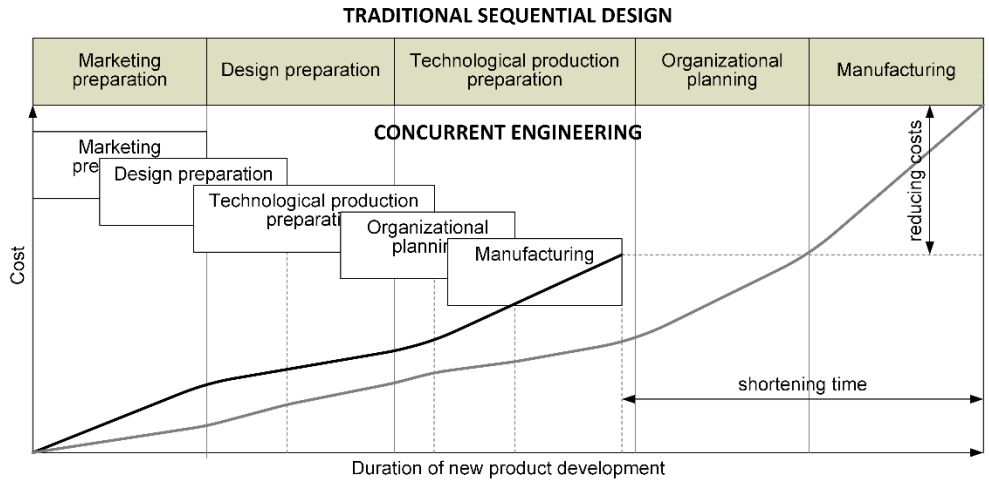

Figure 1: Model of CE processes (elaboration based on Pająk, 2006)

The presented problem is one of the most significant elements of management processes concerning the manufacture of products, particularly under the conditions of unrepeatable and irregular production, which, to a large extent, is characteristic of small and medium-sized enterprises (SMEs).

2. DEFINITION AND PRINCIPLES OF PROJECT MANAGEMENT

The fact of planning approach within the recent several dozen years to the planning presented by a significant group of American theorists of organization and management which includes distinct individual programmes and permanent programmes exposed the significance of the project issue. The definition proposed by the Project Management Institute (PMI) says "a project is a temporary endeavor undertaken to create a unique product, service or result" (PMI Standards Committee, 2013). Additionally, the venture must be characterized by the following features: (1) single character – execution of the venture for the first time, (2) purpose

– result of a determined strategy, (3) individual – no relations with a normal, routine company activity, (4) limited – with time constraint of the venture execution, (5) structurally individual
– separating the venture execution as an individual structure within a company.

All above conditions are very important, especially in a situation when projects are executed as contracts, where it is exceptionally important to meet deadlines and where conformity of obtained purpose with the project assumptions is necessary. The execution process of each project is complex, it involves multiple resources, and requires from the contractor various abilities having impact on different scopes of the company activities. Disputes are still ongoing with regard to the essence and the principles of project management, both theoretical ones within organizations which deal with the standardization of project management methods, and those which are more "down to earth" among those who apply certain methodologies to reach particular aims. Point of view constitutes their source – different for a project manager and different for the members of a control committee or the investors. The project parties have their own aims and it is more an art than a science to be able to link them so that the project might give (at least) the majority of them a chance to realize the purposes and not to harm them. According to definition (Kerzner, 2004), the essence of projects, as complex ventures is their definite character. It refers to basic values which characterize project (Figure 2), in other words, the basic project parameters, such as: meeting the needs and expectations of the project employer (quality), cost of execution (cost) and the execution time (time).

The purpose of execution of each project is to obtain all above determined parameters at an assumed level (investment plan). It is reduced to a simple rule: well (meeting the demand and the expectations – i.e. quality), cheap (i.e. cost) and fast (i.e. time).

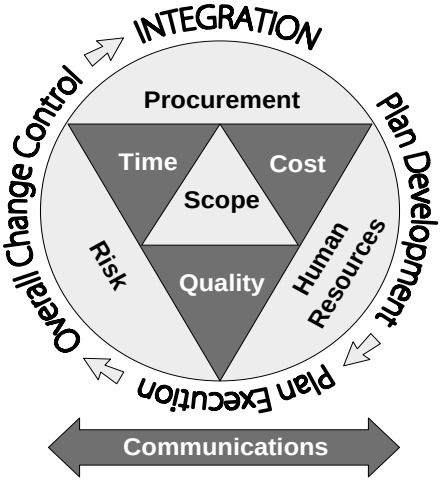

Figure 2: Projects basic purpose and constraints (based on PMI Standards Committee, 2013; Lock, 2009)

The most common project definitions originate from methodological standards of projects management. The Project Management Body of Knowledge (PMBOK) focuses on supply of project products in a timely, cost effective manner and in accordance with quality standards, with an assumption that the decision makers approved the project execution (e.g. products manufacturing) with full awareness, and they have not obligation to specify the purpose of the products possession. It may simply be assumed, that this is an engineering, product – wise approach. The PRINCE 2 methodology defines project from the point of view of execution of the so called business case – the decision makers who are engaged in the project initiation. Purpose execution is superior to the products, deadlines etc. with system introduction of changes in all possible fields when it is advantageous from the point of view of the business case. As for the PMBOK methodology, in a much simplified way it is determined as business investment approach. Project in itself, regardless of the approach applied, is an individual, unique organizational body, temporarily formed and involving people from various organizations, units etc., temporarily. The essence of project management is brought down to use of the structure and material as well as non material resources in order to execute a programme. What is interesting, the programme is also temporary, as it is in force as long as the project exists. From the point of view of controlling, project constitutes a centre of investment or is something on the border of investment, cost, results and income centre. There are no unequivocal instructions with respect to this. Project initiation is determined due to the fact that "normal" process methods do not allow for the execution of the programme (or it will be more difficult, more expensive or at higher risk); there is a need for separate, special organization for the project duration time. The organization structure depends, first of all on the specific features of a given project, and in secondary place on this or other general project products class (e.g. economic or organization project) (Lock, 2009). There are many methods of dividing a project into stages, processes etc. Project planning requires experience, knowledge, and creativity, as a project, as was already mentioned is always temporary and unique. Project evaluation is most important before its commencement (i.e. before engagement of resources for the project products manufacturing). The financial reasons are most decisive, but the beyond – financial criteria are also not without importance. Analysis and decision

instruments for projects management constitute a wide scope of discussion. In general, only one thing may be said: each analytical – decision making method is good, if its application brings useful information within a finite, acceptable time and cost. Contemporary organizations practice shows, that distinguishing projects in planning system, especially in a situation of their strong linking with the cost and effect does not guarantee the expected efficiency of measures, it does not allow proper control of execution of all project stages. It was therefore necessary to determine proper principles and procedures which facilitate project management, the essence of which is to distinguish all necessary concept, planning, executive and control measures, and organize them within one process running within a proper organization framework (cf. Figure 2). Projects management is based on application of knowledge, experience, tools, methods and techniques in project measures, in order to reach or exceed the employers' needs and expectations. This is related with the necessity to combine many parameters such as e.g.: (1) time, cost and quality, (2) demand and expectations of the project employer, (3) purpose of the project. The parameters presented in Figure 2 are currently commonly acknowledged as the basis of projects management. During the project execution, all areas and processes involved in the projects management should intertwine and influence each other. Individual parameters should not be analysed separately or their best solutions should not be interpreted as optimum solutions for the execution of the project as a whole. The task of the project contractors, especially the person in charge of the surveillance of the process is to work out such parameters set as to guarantee the highest efficiency of action. It is not an easy task, especially in the execution of great long-term technical and organizational projects. Most of parameters are mutually dependant on each other. The parameters which are particularly linked are: time, cost, and quality. Change of one of the elements influences the remaining two. Hence, e.g.: extension of project execution time may cause cost increase; cost increase does not necessarily lead to quality improvement or timely execution of contract, whereas execution acceleration may bring quality lowering. Time, cost and quality parameters are significantly important from the point of view of planning and project process control or its supervision. The variables meet certain functions:

- approximating – they indicate possible directions of measures for the project contractors,
- selective – they allow choosing the most optimum solutions,
- coordination – facilitating decomposition of the main aim into partial aims, which allows for coordination of the individual steps in the project execution,
- monitoring – reaching or not reaching certain values providing knowledge about project progress status.

Although the traditional project management (TPM) practices have been explored since the 1960s (Crawford, 2006; Kloppenborg, Opfer, 2002; Shenhar, Dvir, 2007; Söderlund, 2004), there are specific barriers associated with their use when they concern innovative and complex projects related to the creation and development of a new product. Companies are increasingly accomplishing high-innovation projects which constitute one of the most crucial parts while building a competitive advantage in today's market. This involves the need for changes regarding the project management, which requires an approach tailored to other, more dynamic conditions. The key element of the innovation project management in today's turbulent environment is change. As a complex process that takes place on many levels of an organization, it leads to a growth of uncertainty and chaos. The essence of the project changes is perfectly reflected by the agile project management (APM). Agility in projects is considered an effective instrument for managing innovation projects, which simultaneously influences the company's competitive strategy. Subsequently, in the traditional methodical project management, a need for an introduction of systematic, structured and legible approach in change management is beheld.

3. PROJECT MANAGEMENT APPROACH TO NEW PRODUCT DEVELOPMENT

In research concerning the new products development, the evolution of different models is beheld, but it should be noted that most of them consist of successive stages and are of a linear character. In the 80's, an American consulting firm Booz Allen Hamilton, Inc. elaborated a model that was based on the creation of the new product management strategy, with particular emphasis on planning of the undertaking of the new product implementation onto the market, including the determination of individual project stages and the risk assessment concerning launching of a new product (Booz Allen Hamilton, 1982). The following decade the stage-gate model developed by R. Cooper was widely popularized (1990). This process, commonly known as NPD (new product development), consists of six main stages: generating ideas, research, product development, testing, analysis, and commercialization (Cooper, 2008). Each of them is followed by a decision-making process basing on the results of the current stage, and deems how to proceed further works with the new product. This model is one of the most known and most widely conceived concepts in relation to the progressive economic transformations and challenges faced by entrepreneurs in the age of the fourth industrial revolution. A few years later, C. Crawford (1997) proposed a similar model of the new product development, paying particular attention to the factors and indicators used during the launch of the new product. This model highlights the aspect of the knowledge generation during the creation of ideas and the selection of ideas concerning the new product, with an indication on the measurement of these factors within the enterprise. According to the idea of a knowledge-based economy, the next concepts of models concerning the new product development are currently heading in the direction of the knowledge management and process management. Among them there is a proposal of H. H. Chen et al. (2008). In their research, they focused on characteristics of the new product development processes, in which the company's knowledge creation and technical resources were analysed. This enables the companies, new products' specific life cycles to be created, which along with the application of appropriate knowledge management methods, may increase innovation and business efficiency. The Product Development and Management Association (PDMA) introduces a new approach to the management of the new product development, elaborated basing on the hitherto research (Rockart, 1979). An additional stage has been proposed in the new product development, which is still exists prior to the phases known from the stage-gate model, which is to assure adequate preparation for the market research, production planning and undertaking planning. This attitude shows the importance of the preparatory phase of the new production launching process, prescinding the existing concentration of companies at a later stage of the product's technical production. The research results conducted by N. Bhuiyan (2011) have enabled the key success factors identified regarding the new product development as well as the indicators and tools set that may be used to measure them. This model assumes that the main factor influencing the fast and effective development of the new product is a professional approach to the planning stage of the project. Project works related to the product creation and its implementation technology, require a series of decisions that translate into a final effect in the form of a product with specific utility properties. Prescinding the traditional sequential design for the sake of the concurrent design, resulted in the need for effective planning methods concerning production preparation. The project approach and planning methods dedicated to the project management fit perfectly into the operational plans of the new product's technical preparation. The last twenty years have significantly developed research concerning methods and techniques which are used in the management of innovation projects, especially in the new product development (NPD) (Brown, Eisenhardt, 1995). The quest for approaches, within which innovation is implemented and innovated more effectively, tools and knowledge, is obtained from the project management

methods and from the well-established science for project managers, is the result of dynamic transformations in the global economy, coupled with the use of the latest ICT.
The progress of product innovation via the use of methods, techniques and project management tools is the result of the integration of NPD models with PMLC (project management life cycle) models and their adaptation to new demands. Research carried out by R. Cooper (2008) points to various aspects of innovation projects, particularly at the stage of new product or service creation which requires better method adaptation in order to optimize processes in the project approach. Among modern new product development models (cf. Figure 3), one may more and more often find such that refer to the methods of the project management. S. L. Brown and K. M. Eisenhardt (1995) draw attention to the way of accomplishment of each stage of the new product from the perspective of organization's employees. They prove the thesis that one of the most important aspects of the new products' release is to optimally configure communication inside project teams. In turn A. J. Shenhar and D. Dvir (2007) point to the transformation requirement in the approach to the new product project management, and propose rhombic approach to the project management in which the key attributes influencing the project are: innovation, technology, complexity and speed of implementation. Thus, the project adopts a more dynamic form of implementation, and its results are tailored to the clients' needs. Modern project management approaches (agile, adaptive, lean methodologies) constitute a significant group of, elaborated within past two decades, alternative methodological solutions in the field of conducting information technology (IT) projects. Nowadays they are increasingly translated into the field of management of other project types, including innovation projects. These approaches relate principally to adaptive, agile, and lean management ways, heading towards the synthesis of the AgiLean PM strategic project frameworks (Demir, 2013).

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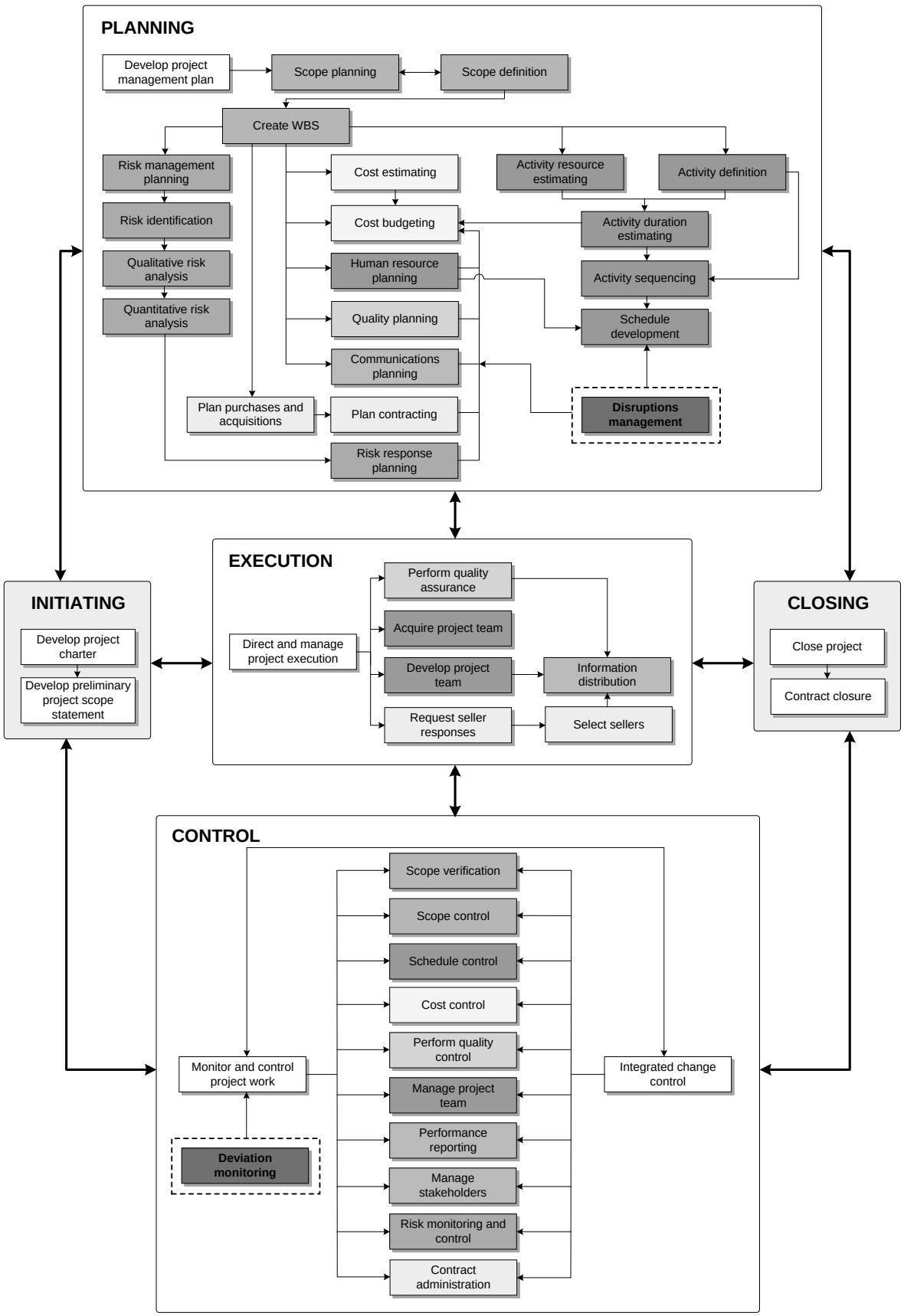

Figure 3: Project management model for planning production preparation processes

The differences in the project management models result from utterly different attitudes. Classical (traditional project management TPM) methodological attitudes are reflection of the philosophy and organization of project processes in the form of waterfall models that are guided by the principle – 'plan at the beginning in order to avoid change'. Modern attitudes that are driven by agile models are generally devoted to a different assumption – 'incremental implementation in order to manage change'. The perception of classic approaches to the project management as a foundation for an adaptive project management is justified, but requires adjustment to individual needs and conditions. Research (Shenhar, Dvir, 2007) indicates that a large number of setbacks in the project implementation are due to the application of a universal approach to the project management. A universal approach is understood as referring to a triple limitation in terms of cost, scope, and time, as well as a rather cumbersome approach to the environmental dynamics and the project's environment. An adaptive project management is identified as a qualitative approach in which the project manager treats the project uniquely, monitoring and updating the project plan depending on the environmental response. A key aspect of this approach is the change management.

4. CONSLUSION

Works undertaken during product design and elaborating the technology for its production require making a number of decisions that ultimately translate into the final product with specific functional properties. Those works can be and, progressively more often, are performed with computer aid. To ensure proper current business activity of a company one must also focus on the decision level of production preparation, particularly in the area of structural and technological product preparation. A departure from traditional sequential design towards concurrent design necessitates a search for effective methods of planning production preparation. The project approach and planning methods dedicated to project management have become an inherent part of operative plans of production preparation. The application of project management method not only shortens production preparation of a new product, but also enables the rational use of resources and reduces the risk of project failure. These approaches are the essence of practical experiences to have been accumulated over recent years during the implementation of a number of public and commercial projects. Extensive research and practical experience which have been accumulated over the last quarter of a century have enabled to develop comprehensive, yet effective standards that can be successfully applied across a variety of organizational and project contexts, including the new product development projects. Their improvement is due to the need for adjustment to fast-growing new areas that require in-depth exploratory research and exploration. We note that the need for shortening production preparation time demands undertaking actions that aim to automate the individual stages of product development. This can be achieved through computer-aided integration of data obtained from modeling products, product production processes, and production means themselves. Above all, taking advantage of extensive databases enables the efficient creation and management of design documentation and all the documents necessary during production.

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SMART SPECIALISATION – A COLLECTIVE AWARENESS PLATFORM AND TOOLSET FOR RIS3 STRATEGY IMPLEMENTATION

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ABSTRACT

With continuing integration of global markets in the world economy driven by globalisation, many regions in Europe are finding that they need to review and revise their strategies and positioning in order to improve regional economic growth. A plan for targeting specific specialisations to achieve economic success in interconnected and competitive environments is essential. The European Commission (EC) encourages European regions to devise smart specialisation strategies that build on the core strengths of a region. To this end, European regions are encouraged and incentivised financially to formulate and execute Smart Specialisation Strategies (S3). Such strategies often involve complex multi-stage processes that involve many diverse types of stakeholders. The suggested processes for managing S3 activities drive new strategies to enable better monitoring and management of resources over time. This paper addresses a number of specific activities within the recommended S3 implementation procedure. In particular, it focuses on how software support tools can be employed in order to support activities in the various S3 implementation phases. The paper introduces the necessary background on S3 and the overall research context. A number of activities that form part of the different phases of S3 planning, implementation and monitoring are introduced along with a selection of software applications that have been specifically developed to assist with the identified activities. All of these are described in detail along with the process, rationale and evidence base for supporting a particular smart specialisation strategy. Evaluation and feedback from actual regional project partners are also presented. The implementation of specific software applications including the process for introducing and using advanced decision support tools is also presented and critically reviewed.

Keywords: *Decision Support Tools, Visualisation Tools, Collaboration Tools, Smart Specialisation Strategy, RIS3*

1. INTRODUCTION

In the current globalised economy, we communicate, share data and learn about each other's cultures through travel and trade. At the same time, we transport and move goods and services all around the globe. All of these activities come together in seconds, hours or in days. We operate in a huge global economy where something can easily happen in one part of the world

that can have a real knock-on effect globally. Globalisation is the process of the increasing integration of markets in the world economy. This drives the growing need for more sustainable economic strategies to include Smart Specialisation and various online support mechanisms.

1.1. What is Smart Specialisation?

Smart Specialisation [1] is a place and usually region-based approach characterised by the identification of strategic areas for intervention based both on the analysis of the strengths and potential of an economy including its Entrepreneurial Discovery Process (EDP). It was conceived within the reformed cohesion policy of the European Commission. It is outward-looking and embraces a broad view of research and innovation including but certainly not limited to technology-driven approaches, supported by effective monitoring mechanisms.

1.2. Smart Specialisation as a Strategic Framework

Smart specialisation is a policy framework [2] that combines industrial innovation with educational policies (including their design, implementation, and evaluation) in order to promote new economic growth opportunities based on innovation and knowledge sharing. Smart specialisation is about identifying the unique characteristics and assets of each country or region, highlighting competitive advantages, and rallying regional stakeholders and associated expert resources around an excellence-driven vision of their future. It also means strengthening regional innovation systems, maximising knowledge flows and spreading the benefits of innovation throughout the entire regional economy.

1.3. Current Developments Online S3 Platform

The Smart Specialisation S3 Risc3 Platform [3] is an evolving online web-based resource that assists EU countries and EU regions to develop, implement and review their Research and Innovation Strategies for Smart Specialisation (RIS3). Established in 2011 following the Communication "Regional Policy contributing to smart growth in Europe 2020", the role of the S3 Platform is to provide information, methodologies, expertise and advice to national and regional policy makers, as well as promoting mutual learning, trans-national co-operation contributing to academic debates around the concept of smart specialisation.

2. EU MEMBER STATE MOTIVATIONS AND OBJECTIVES

2.1. The Complexity Within a Globalised Economy Environment

Survival in a globalised economy creates requirements for a widely distributed skill base and intellectual capital to be available for society to succeed. International competition, increases demands for sophisticated goods and services, and greater complexity of work drives the endless development cycle. Societies throughout the world strive to improve their governments, their public services and the quality of life for their citizens competing for some aspect of specialisation in the greater world. Specialisation, for example, whether a region wants to become the most sustainable innovative destination or the most research-intensive or the best educated, drives future strategy. Each region has urgent needs to improve knowledge and other intellectual capital assets available to the government and associated public operations, to commerce and industry, and to the general public alike. This is the main motivation for developing more evidence-based economic strategies. Globalisation itself is making regions think more about decision-making processes including the methodologies and frameworks used. This is crucially driving a wider need for better, more informed strategies for greater control of priorities and/or specialisation within a country or region.

2.2. Competitive Strategy Imperatives

The previous section alluded to the fact that regional development strategies need to become much more focused in order to remain or become competitive. If a region wants to compete in a global economy, it must work out and to some extent predict ongoing future marketplaces focusing in on key industries and areas of business. The key competitive imperative lies in the ability to develop and manage integrated value chains much better, carrying out systematic planning to create a thriving future, testing our understanding of a competitive business environment not relying on the old rules of business or commerce. More importantly, society should begin to embrace the use of new forms of data. This has become the new basis of competitive advantage. Societies in the future will need to apply more sophisticated analytics across various disparate systems to achieve much better outcomes with respect to economic strategies.

2.3. Generic Competitive Strategies

One way to look at achieving competitiveness is through the use of Michael Porter's Generic Competitive Strategies (ways of competing) [4]. Many other strategic frameworks exist. Some complement Porter's framework, namely "The Delta Model" based on "Resource Based View" paradigm. This framework places the end customer at the very centre of management. At a structural level it examines the primary options available to establish customer bonding and prescribes how to link strategy with execution through the alignment of various adaptive processes. The next section of this paper focuses in on strategy analysis working through the uses of various frameworks, more specifically centring on S3 Smart Specialisation frameworks to bring about strategic competitive priorities.

3. SMART SPECIALISATION ANALYSIS FRAMEWORKS

3.1. Facets of Competitive Strategy Analysis for Smart Specialisation

If we go back in time to ascertain how economic strategies have come about we only have to consider a small number of theories. These include not least - as indicated above - subsets of Michael Porter's competitive strategy models. Porter's five forces include three forces from 'horizontal' competition: the threat of substitute products or services, the threat of established rivals, and the threat of new entrants. They also include two others from 'vertical' competition to include the bargaining power of suppliers and the bargaining power of customers. Porter developed his five forces framework in reaction to the then-popular SWOT analysis, which he found too ad hoc and lacking in rigor. Porter's five-forces framework is based on the structure–conduct–performance paradigm in industrial organisational economics. It has been applied to try to address a diverse range of problems, from helping businesses become more profitable to helping governments stabilise industries. Other Porter strategy tools include the value chain and generic competitive strategy five-forces model. The five forces govern the profit structure of an industry by determining how the economic value it creates is apportioned. That value may be drained away through rivalry among existing competitors, of course, but it can also be bargained away through the power of suppliers or the power of customers, or be constrained by the threat of new entrants or the threat of substitutes. Strategy can be viewed as building defences against the competitive forces or as finding a position in an industry where the forces are weaker. Changes in the strength of the forces signal changes in the competitive landscape critical to ongoing strategy formulation. Other models include the Boston Matrix. The Boston Matrix is used to help the organisation decide how to allocate resources to each product or service it sells depending on how that product or service is positioned in the market. This is often used by people responsible for brand marketing, product management, strategic management, and portfolio analysis.

4. SMART SPECIALISATION DECISION SUPPORT TOOL ENVIRONMENT

The next sections of this paper provide information about new decision support tools that have been specifically constructed to help EU countries and or EU regions develop Smart Specialisation S3 strategies. In total, 29 tools have been developed and these are currently being tested by a number of EU consortium partners to help deliver Smart Specialisation Strategies. These tools have been modelled around some of the above frameworks and methodologies building on the works of Michael Porter and others to bring about a unique online tool set that can be used to formulate new competitive strategy. The tools build on existing EU data and the emergence of new forms of data currently becoming widely available across many EU states. Some of the applications are explained below.

4.1. SWOT Analysis

The SWOT Analysis application is a tool designed to support users who are conducting a SWOT analysis for their entity, which in the context of RIS3 is likely to be a particular EU region. The application provides functionalities to easily document, update and share SWOT analysis content. SWOT Analysis is a process that is designed to help identify strengths, weaknesses, opportunities and threats concerning the activities of an organisations. It is useful in helping regions determine their regional assets and their relative positioning. It can also be used in order to identify areas of strength of a region to perhaps build upon and investigate further. SWOT analysis provides key stakeholder users with an analysis framework under which they can gather and organise information about the relevant topic of interest, positioning it for analysis and further presentation. The analysis of opportunities and threats forms part of a SWOT analysis encouraging users to move beyond focusing on an isolated review of any topic area or organisation being analysed moving towards a more detailed level that includes white spots and competitors as integral parts of their overall examination. The method behind the tool is helpful in terms of reviewing regional analyses to identify key areas for utilisation. SWOT Analysis essentially enables regional stakeholders to help predict the most appropriate Smart Specialisation Strategies, thus determining how each can possibly build on the regional strengths and advantages, as well as mobilising growth in leading areas of research and innovation. Furthermore, the application helps EU regions develop S3 policies based on areas of strength and weakness as identified by the cumulative SWOT analysis. The SWOT Analysis application more specifically enables users to enter and update SWOT analysis data, store and retrieve data, share a snapshot of a SWOT analysis with other users allowing them to add, delete, and edit any ongoing SWOT data over time. The application serves as an online template for filling in, updating, sharing and publishing SWOT analysis data over time.

4.2. Collaborative Vision Building

The Collaborative Vision Building application helps to create a shared vision for any specific regional EU related topic area by gathering views from stakeholders through a structured collaborative vision building process. The application helps to create a virtual "vision building session" gathering input from stakeholders joining various vision sessions together into the generation of a final vision statement. The final vision is born from outputs of any proposals the actual discussions and the input from a wide range of different stakeholders. The process is captured online, providing a means to document what happened during the process. Facilitators of a vision building process help to start a vision building procedure through which stakeholders can provide input and discuss proposed vision statements. The current state of the art converges on a visioning practice that accounts for systemic relationships, ensures coherence and adopts advanced sustainability concepts, while allowing all relevant stakeholders to provide inputs.
Incorporating such visioning practice into regular planning processes allows city administrations to avoid conflicting and suboptimal development, unintended consequences of

development with adverse impacts, and stakeholder resistance due to lack of ownership and accountability.

4.3. Calls Consultation

The Calls Consultation application facilitates communication and discussion around funding calls consultation activities including responding to call proposals relevant to RIS3 strategies. The application provides users with access to a discussion and voting platform within which they can exchange views with other governance stakeholders. In more general terms, 'stakeholder consultation' refers to the interaction with stakeholders during processes of evaluation or preparation of policy initiatives, as well as implementation of existing policy interventions. In the case of Smart Specialisation, the application focuses on stakeholders' participation in the RIS3 calls. This method offers key EU stakeholders the ability to interact with various ongoing Call for Projects, during the early stages of preparation, proposing evaluation criteria that could be potentially included in a call response. The value of a Calls consultation application becomes evident when projects relate to highly specialised areas that might require increased scientific and or technical knowledge in order to prepare the selection criteria for these types of projects.

4.4. Innovation Maps

The Innovation Maps application enables the mapping of innovation footprints as a method to gain better understanding of the process of innovation and the visualisation of innovation-related phenomena. The application enables users to upload, annotate and visualise mapping data. The application also enables users to articulate innovation plans. The mapping tool can help uncover critical bottom-up information embedded in the R&D of a firm and innovation applications for public funding support. In the context of the smart specialisation process and entrepreneurial discovery, the Innovation Maps application can be used to help tease out information about technological trends. Data from the maps provides bottom-up information about new emerging businesses and technology trends as perceived by the private sector.

4.5. Open Data Tool

The Open Data Tool is a tool that presents key regional information and lets users access and filter the presented data for research purposes in order to enrich and add to the evidence base for additional clarity in their RIS3 strategy. To this end, the application gives users access to CORDIS data through a custom-implemented data search and analysis tool. Currently, open data tools are not widely used in non-publicly funded projects. However, the effective use of this tool, facilitates the tracking of project themes and topics in each region which may be cross-referenced with S3 priorities. The data made available by the tool can be highly valuable in tracking progress towards defined objectives and vision, and to inform the RIS3 update process. The RIS3 Open Data Tool is a form of data repository that enables a finely grained tracking of projects and initiatives implemented in each region with links to respective S3 priorities. Data is mined using an automated collection system which mirrors the CORDIS database along with additional information extracted from other EU projects and associated coordinator websites. The method entails the setting up an Open Data Platform accessible through either a web service or through a website such that it enables up-to-date data from ongoing regional projects and their results. This tool will be usable by EU regions who wish to track their open data sources enabling new and existing forms of data to be considered as part of their objectives and vision strategy.

4.6. Balanced Scorecard

The Balanced Scorecard (BSC) application provides end users with a tool to create, store and update Balanced Scorecard goals and data for their specific region using a simple online user interface. The Balanced Scorecard is a planning and management system that is widely used in a variety of areas in the private and public sector, with the aim of ensuring that the activities of an organisation are in line with its vision and strategy, improving internal and external communications, and monitoring organisation performance against strategic goals. The idea behind the original balanced scorecard was that it provided a performance measurement framework that added "strategic non-financial performance measures to traditional financial metrics to give managers and executives a more 'balanced' view of organisational performance" However, the BSC has developed over the years and the so called "new" balanced scorecard aims to transform the strategic plan of an organisation from a passive tool into an active tool on a daily basis. In other words, the balanced scorecard will help planners to identify what should be done and how it should be measured.

Figure following on the next page

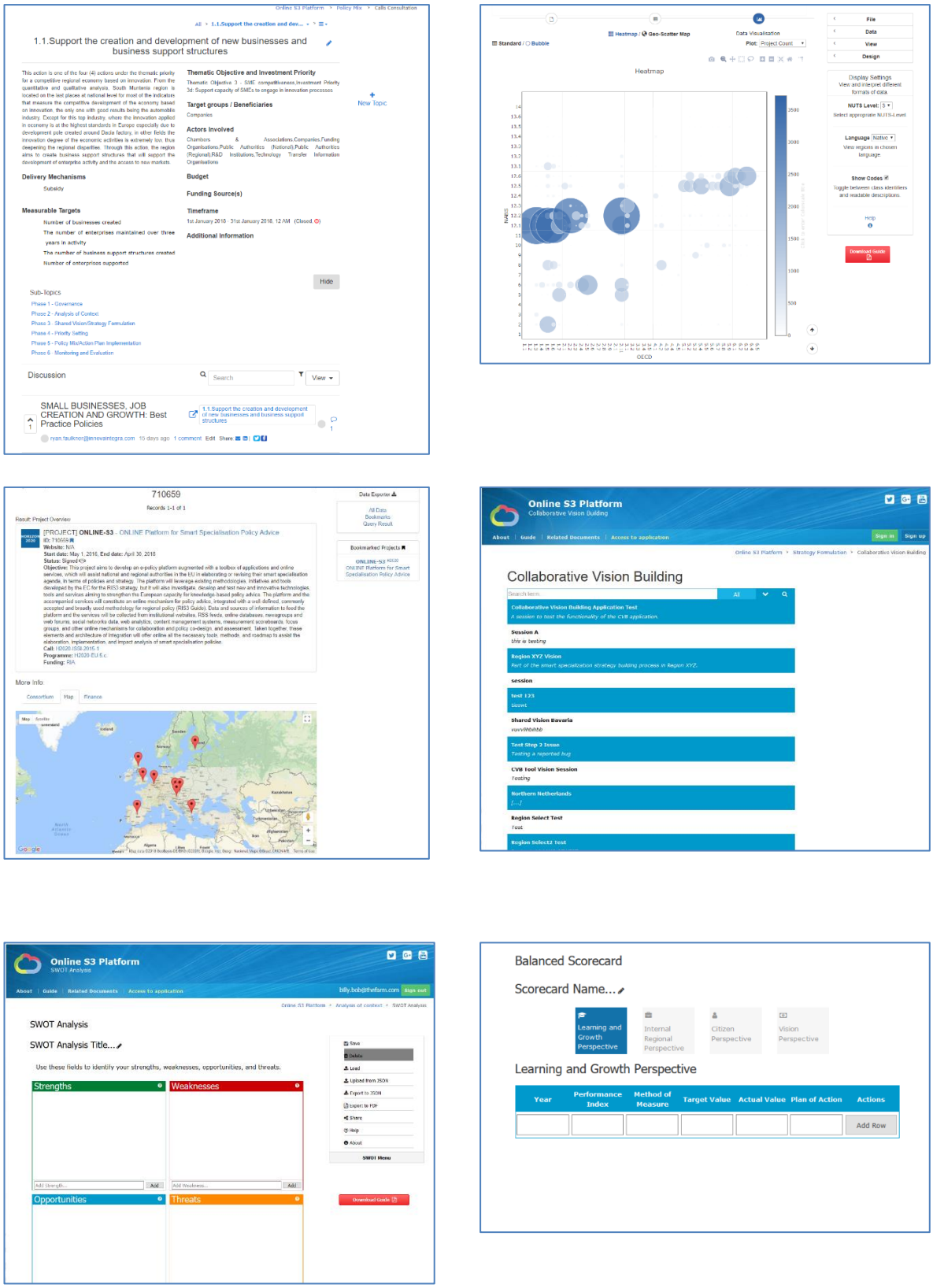

Figure 1: Screenshots of Online S3 applications described in this article

4.7. Smart Specialisation Decision Support Tools Dashboard

The above provides a sample of the 29 applications currently being tested through the Online S3 Smart Specialisation Platform. For more information please visit http://www.onlines3.eu/ [7].

For the tools described in the previous sections, the project team are in the process implementing the described applications as part of the overall Online S3 Platform. The consortium is also carrying out thorough testing of the entire set of RiS3 online application tools. The new tools need to be viewed in the context of current Smart Specialisation Methodologies and guiding principles. In the future it will be more important to establish priorities across a wider EU region, and the Online S3 Platform aims to provide a freely accessible open tool ecosystem to support Smart Specialisation initiatives.

5. USABILITY EVALUATION

5.1. Evaluation Framework

Online S3 consortium end user partners are currently testing the project online platform in four different pilot EU regions and countries with different levels of development of their RIS3 strategy and implementation and with different modes of governance traditions. The first two initial pilot areas are Scotland and Central Macedonia. In addition to this, two other EU Regions have been selected as a result of an open call. The call was advertised with the selection of both Northern Netherlands and Galicia now providing further testing of pilots. The terms of the criteria for testing and specific areas of specialisation are outlined below.

5.2. End User Evaluation Partners

5.2.1. Scotland

Scotland aims to translate the RIS3 five-step process of entrepreneurial discovery into a Scottish version of the S3 strategy in order to be able to offer policy advice to stakeholder groups on smart specialisation, modifying the current website to communicate this strategy. The programme is tasked with a) generating smart, sustainable and inclusive growth; b) drawing upon the lessons learnt from the first phase of implementation as a basis for future Smart City and Sustainable island programmes to comply with steps 1, 2 and 3 of the process; and c) to integrate the EU Digital strategy into the existing S3 strategy and exploit the synergies this offers for growth. In the Scotland RIS3 process, the major priority sectors include: food and drink, sustainable tourism, financial and business services, creative industries, energy and life sciences.

5.2.2. Macedonia

Macedonia aims to advance specialisation further, focus on specific points in the value chains and their intersection, specific strategic projects planning, specific tools and model analyses, entrepreneurial development, consultation in a broader area with different digital and physical tools, budgeting, strategic mass alignment, business intelligence, follow up and results analysis/ feedback etc. Priority sectors of its RIS3 strategy are agri-food, building materials, clothing & textile, tourism. Supporting sectors of the strategy are: a) ICT, b) energy technologies, c) green technologies and environment, and d) transport & logistic technologies and tools.

5.2.3. Northern Netherlands and Galicia

These regions were selected as part of the open call. They have similar objectives to both Scotland and Macedonia. As a pilot of the Online-S3 platform, the Northern Netherlands Alliance (SNN) is responsible for mobilising its stakeholders to test and review the online tools and applications. These stakeholders are required to provide feedback by filling in an online questionnaire.

5.3. Evaluation of Initial Pilot Results

While evaluations of the Online S3 Platforms are ongoing at the time of writing, initial exploratory evaluations have been undertaken by the project consortium and fed back into the iterative project development cycle. The following findings have been identified from literature reviews and the initial pilots carried out:

- Policy decisions must be based on knowledge that is very emergent and where possible merge knowledge that is scattered across EU regions. This calls for access to more real-time data gathering methods as well as data visualisation tools that enable more user-friendly data analysis
- New methods and tools with various participatory and crowdsourcing elements are fast becoming more important than ever before
- Increasingly, we require custom-made policy intelligence that draws upon a wide array of data sets through web enabled tools for more ambitious, accurate and timely analysis encouraging more experimentation and automatic discoveries to be made
- There is no real link between the level of innovativeness of regions (measured by RIS 2016 ranking) and the methodological sophistication of RIS3 designs
- Specific investment indicators as well as value chain indicators would be very useful for regions and policymakers. Value chain analyses should not only look at competitors, but also at collaborators
- Stakeholders should make use of regional cohesion data
- Use of participatory platforms and forums will continue to drive the RIS3 design process
- Professional training around processes and application use, should be made available at all times
- Ease of use of the platform and applications should drive usefulness and end user satisfaction

Generally, findings and feedback indicate that the success of the online applications is largely depending on the quality of the overall input of data from stakeholders and on the public availability of data for use in a regional context. Some applications are more relevant for specific target audiences only meaning different target audiences should be given dedicated paths of entry in order to access the applications most relevant to them.

6. CONCLUSIONS AND FUTURE WORK

Underlying Frameworks, Methodologies and Modelling for strategy development are currently being refined from early research on how to development competitive strategy. The five-forces model, Boston Matrix is still being used in its enhanced forms to review holistic strategy design. Smart Specialisation Decision Support Tools use these competitive strategies; however, we are still at their early stages of development within the EU as a whole. Once fully developed, the online tools and applications developed in the Online S3 project will enable specific stakeholder groups to apply more integrated model driven framework strategies to assist in determining more competitive regional Economic Growth Strategies. More advanced specialisation decision support tools are urgently required to help future EU leaders in developing globally competitive economic growth strategies. Easy to use decision support dashboards will be required to provide an overarching view of any strategy formulation. In particular, the ongoing future R&I outputs in a specific EU region over time should be enhanced further as a result of Online S3 developments. To achieve this, the use of new forms and sources of data will be essential if we want to develop more intelligent knowledge-based systems to overcome ongoing globalisation effects particularly disruption of markets in certain sectors. Beyond new methodologies, frameworks and technical solutions, we urgently need to move towards more digitally automated data driven intelligent knowledge based Smart Specialisation Strategies with one

holistic dashboard view if we want to truly overcome the full effects of globalisation. If we do this, we will create an innovative environment from the outset in which to not only survive, but to constantly enable intelligent sustainable growth over shorter time period allowing us to prosper and thrive regional and across the globe.

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ENTREPRENEURSHIP IN THE EUROPEAN UNION – FACTORS OF BUSINESS SUCCESS

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ABSTRACT

In recent years, several papers, conferences and discussions have highlighted the importance of entrepreneurship in terms of potential for future jobs created and contribution to economic growth. What people understand by "entrepreneurship" varies from a narrow definition - business creation, to a wider one - a type of behaviour concentrated on opportunities. Thus, in this paper we will focus just on the business creation. Furthermore, when it comes to the reasons why people are interested in opening their own business, these are very diverse: desire to be one's own boss, desire to make a living from a hobby, tradition for self-employment in the family, prospect of making more money, avoiding unemployment, getting away from an unsatisfactory work situation and others (Eurostat). When it comes to outcomes, SMEs generate income, employment, innovation and new technologies. However, sometimes new businesses have a limited survival rate. In this context, the following questions emerge: What makes a company successful? Are there any differences based on the founders' demographics? Can a company found by a student / young person last for a long time? Thus, this paper aims to take a look at potential factors of business success, using secondary data, in order to identify what makes a company different from its competitors, what are the key aspects to keep in mind and what might cause problems.

Keywords: *entrepreneurship, European Union, secondary data, SMEs, success factors*

1. INTRODUCTION

Entrepreneurship has become a widely researched topic, being seen as one of the key segments of economic development. However, economic development depends on the business environment (investments, laws and regulations), as well as on investments in knowledge and innovation. When it comes to the reasons why people are interested in opening their own business, these are very diverse: desire to be one's own boss, desire to make a living from a hobby, tradition for self-employment in the family, prospect of making more money, avoiding unemployment, getting away from an unsatisfactory work situation and others (Eurostat). As regards the outcomes, SMEs generate income, employment, innovation and new technologies (Liñán, Fernandez-Serrano, 2014). In terms of context, different cultures provide different contexts for entrepreneurship. Hence, countries capable to accommodate high rates of business formation and dissolution will be best positioned to compete in world markets (Bednarzik, 2000, p.3). This subject, of interest for both policy makers and academia, is complex and needs to be analysed from different perspectives. Thus, this paper cannot and does not attempt to offer answers to all questions, rather it sets a stage for discussion, exploring some of the factors considered important for business success. The paper is structured as follows: section 2 offers a brief literature review, section 3 describes in short entrepreneurship in the European Union, and section 4 concludes.

2. FACTORS OF BUSINESS SUCCESS

In recent years, entrepreneurship has drawn a lot of attention, which resulted in a variety of definitions and views of it. Thus, entrepreneurship is defined as starting and running one's own firm; creation of new economic activity; corporate entrepreneurship - i.e., creation of new economic activities by large, established firms (Davidsson, 2016). Although often associated with small business, entrepreneurship is not exactly the same. According to some others, entrepreneurship is a competitive behaviour that drives the market process (Kirzner, 1973); a type of behaviour concentrating on opportunities rather than resources (Thurik, Wennekers, 2004), which means that it is relevant for both small and large businesses. Also, entrepreneurship is discussed as a societal phenomenon, as well as a scholarly domain. As regard the implications entrepreneurship has at macro level, one could study the impact on the economic system and/or the novelty to the market. But entrepreneurship does not happen automatically on its own. It must be developed and cultivated. Consequently, business creation must be supported, encouraging the creation of small businesses and supporting them to become active and successful (Samli, 2016). Also, entrepreneurship depends, up to a point, on the personal characteristics of people, but is also related to education. Nowadays, in a challenging market environment, being able to develop a competitive advantage is a critical success factor for a small company. In order to do so, entrepreneurs have to identify the relevant competitors, the company's strengths and the available resources. Additionally, entrepreneurs should have a clear understanding of their customers (who is buying their products/services, which are their needs, how often do they buy, why did they chose this company and not one of its competitors, etc.). In fact, the absence of market orientation in SMEs often leads to lower performance and higher risks of business failure (Blankson, Stokes, 2002; McCartan-Quinn, Carson, 2003; Alpkan et al., 2007). People usually think of markets as a given. But the challenge comes into play when the market does not yet exist, or is being redefined. In such instances, high levels of learning become necessary (Schindehutte et. al, 2008). Last but not least, the company has to deliver as promised. In terms of personality and entrepreneurship outcomes, several authors have begun studying various personality characteristics of entrepreneurs (Rauch, Frese, 2007; Zhao et al., 2010, Miller, 2014; DeNisi, 2015; Klotz, Neubaum, 2016). While there is evidence of the positive role of certain personality traits in driving entrepreneurship outcomes, some authors became interested in the "potential dark side to the entrepreneurial personality" (DeNisi, Alexander, 2017). In terms of positive traits, Rauch and Frese (2007) found that the need for achievement and for autonomy, innovativeness, a proactive personality, stress tolerance, locus of control and risk-taking are relevant both for entrepreneurial success and the decision to become an entrepreneur. On the other hand, ambition and/or need of control at excessive levels might lead to problems for the entrepreneurs themselves, their company, and those who might work with them. Finally, there is no substantial empirical evidence to prove the "dark side" to the entrepreneurial personality, which makes it an open question requiring further research. Human capital (education level, industry experience and management experience) is another aspect which has been extensively studied. Along these lines, family-environment, education, age, work history, role models and support networks have been identified to contribute to the business venture success (Krueger, 1993). Human and social capital enable entrepreneurs to envision the future, recognize and pursue opportunities, develop new business models, overcome risks, and use unique resource bundles (Erikson, 2002; Schindehutte et. al, 2008).

3. ENTREPRENEURSHIP IN THE EUROPEAN UNION

As regards the reaction of the European Union towards entrepreneurship and polices supporting it, European countries have been slow in recognizing its potential, compared to the United States of America.

At first (1980s - early 1990s), European policy makers looked at Silicon Valley with scepticism, being rather concerned of the large multinational corporations (such as General Motors, IBM, etc.). During the mid-1990s, Europe recognized the sustainable long-run performance of companies in Silicon Valley. However, it was thought that Europe will provide automobiles, textiles and machine tools, while the USA will produce software and microprocessors, trading with each other. Thus, Europe decided to focus on traditional technology industries. During the second-half of the 1990s, USA and Europe seemed to be on totally different trajectories. It was in the final years of the last century when European policy makers admitted the superiority of the entrepreneurial economy and Europe's potential of implementing one (thanks to its educated and skilled labour force, variety in cultures and hence innovative approaches). Thus, the Green Paper on Entrepreneurship of the European Commission (2003) was the first document acknowledging entrepreneurship as an important driver for economic growth (Thurik, Wennekers, 2004, pp.142-143). According to the Global Entrepreneurship Monitor for 2017-2018, when it comes to the total early-stage entrepreneurial activity (TEA, meaning % of adults who have started or are running a business up to 3.5 years), Europe has the lowest rate (8.1%), while Latin America and the Caribbean, as well as Africa have the highest rate (18.5%). This might be explained by the fear of failure, which seems to be the highest in the European Union, with 46.7% of the youth and adults indicating that this would prevent them from starting a business (Global Entrepreneurship Monitor & Youth Business International, 2013, p.35). In terms of the motivation for early-stage entrepreneurial activity (fig. 1), last year, in Europe, there were 3.4X as many improvement driven opportunity entrepreneurs (meaning those seeking independence in their work or increased income) as necessity driven ones.

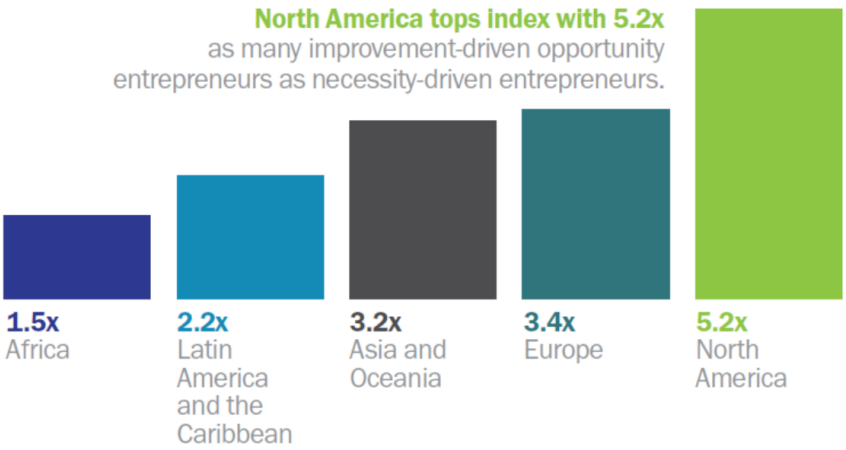

Figure 1: Motivational index for early-stage entrepreneurial activity (Global Entrepreneurship Monitor, 2017-2018 Global Report, p.13)

The key reason for closing a business (worldwide, in the last three years: 2015-2017) was the lack of business profitability. Also, women entrepreneurs have lower growth expectations and higher rates of discontinuance (Global Entrepreneurship Monitor, 2017, p.52), which means that women face challenges in sustaining their businesses. As regards the entrepreneurial employee activity (EEA or intrapreneurship, meaning % of employees developing new goods and services for their main employer) Africa has the lowest rate (0.9%), followed by Latin America and the Caribbean (1.6%), Asia and Oceania (3.1%), Europe (4.4%) and North America (7.9%). When compared to other regions in the world, European economies rank low in terms of proportion of people starting businesses. But in Europe, most entrepreneurs choose to innovate inside larger organizations (intrapreneurship), with Denmark, Sweden and the United Kingdom as leading economies (fig. 2).

An exception are most of the eastern European and Baltic economies, which have high rates of business formation (TEA) and lower rates of EEA (World Economic Forum & Global Entrepreneurship Monitor, 2016).

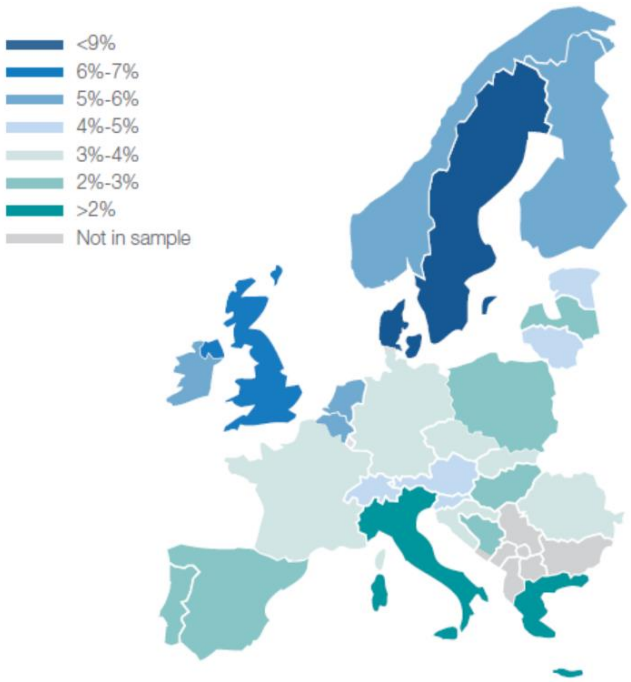

Figure 2: Entrepreneurial employee activity (EEA or intrapreneurship) in Europe (World Economic Forum & Global Entrepreneurship Monitor, 2016, p.7)

Furthermore, North America is the region with the highest proportion of entrepreneurs expecting medium to high job creation (6 or more jobs in 5 years) (29.5%), followed by Asia and Oceania (21.0%), Europe (18.5%), Latin America and the Caribbean (18.0%) and Africa (17.0%). Usually, young entrepreneurs (18-34 years old) are more confident than older ones about creating jobs over the next years, but in terms of starting a new business, fewer young people in Europe and Asia think that they have the capability and the opportunity, compared to young people from the Middle East, Africa and Latin America (Global Entrepreneurship Monitor & Youth Business International, 2013, p.7). When it comes to gender distribution of early-stage entrepreneurial activity (fig. 3), Europe ranks the lowest, with 6 women for every 10 male entrepreneurs (compared to Latin America and the Caribbean, the highest, with 17 women for every 20 male entrepreneurs). Still, there are three economies where women report equal or higher entrepreneurship rates than men: Ecuador (30.6%), Vietnam (24.8%) and Brazil (20.7%).

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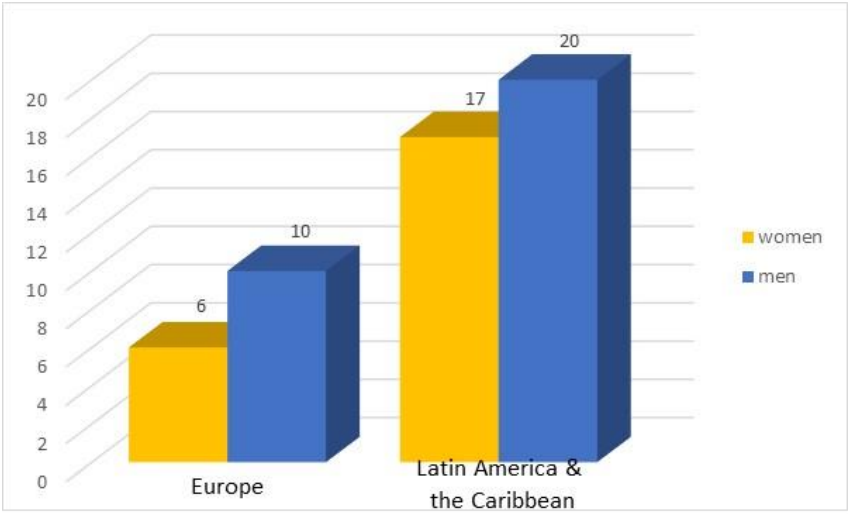

Figure 3: Comparison of gender distribution of early-stage entrepreneurial activity in Europe and Latin America and the Caribbean (based on data from Global Entrepreneurship Monitor, 2017-2018 Global Report, p.15)

As regards age distribution of total early-stage entrepreneurial activity (TEA), Europe ranks again the lowest of all regions, in all age groups. North America has the highest level of TEA for the 25-34 year-old age group (23.4%), while Latin America and the Caribbean have the highest youth entrepreneurial activity (18-24 year old = 16.5%) (Global Entrepreneurship Monitor, 2018, pp.15-16). In terms of context, according to the experts surveyed by the Global Entrepreneurship Monitor (2018, p.26), globally, education at school stage, government policies related to taxes and bureaucracy and R&D transfer have a more hindering than stimulating impact on entrepreneurial activity in 2017, as was the case in 2016. Also, North America has the most supportive entrepreneurial framework conditions. As for entrepreneurship societal values and self-perception, last year Europe ranked the lowest in seeing entrepreneurship as a good career choice (58.7%). Last but not least, it seems that most entrepreneurs around the world are opportunity-motivated (Global Entrepreneurship Monitor, 2018, p.33), most of them located in North America.

4. CONCLUSION

To sum up, entrepreneurship does not mean just business creation. It can be found also inside large companies (intrapreneurship), in all phases of the business life cycle, both in the private and public sector, and in all countries across the globe. Nowadays, in a challenging market environment, the traditional "job for life" will be more an exception, than the norm. Thus, entrepreneurship and youth entrepreneurship will need to be seen as an additional way of job creation. But society's perception of it (its attractiveness as a career choice) influences the desire to start a business and the likelihood that businesses will find investors, suppliers and customers. Europe ranks low in terms of early-stage entrepreneurial activity, because most of its entrepreneurs choose to innovate inside larger organizations (intrapreneurship). Consequently, European policy makers should focus on entrepreneurial employee activity (intrapreneurship) in order to gain a competitive advantage, rather than trying to emulate other regions (for example Silicon Valley), that are driven by spin-offs and independent entrepreneurship. Also, policy makers have to understand that entrepreneurship is influenced by the quality of the institutional and regulatory context of a country (taxation schemes that support new businesses and SMEs; less bureaucracy at national, regional and city level; effective implementation of government policies).

When it comes to comparisons, it is difficult to compare entrepreneurial activity between countries, because each country has specific economic, political and cultural environment, which influences the climate in which businesses operate. Still, data collected by the Global Entrepreneurship Monitor assesses entrepreneurial activity in 54 world economies, while the World Economic Forum's Global Competitiveness Index ranks economies on their economic competitiveness. Individuals who are confident that they possess the skills to start a business are more likely to be involved in entrepreneurial activities. Thus, entrepreneurship education is key (at all school levels). Universities should create co-op educational programs (classes + internship programs) getting students involved in entrepreneurial activities throughout the entire program of study. Furthermore, mentorship programmes (especially for young entrepreneurs), training and coaching (including details about access to financing and other resources) are important to help both new and established businesses to grow over time.

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INDUSTRIAL POLICIES OF TODAY: THE GREEN INDUSTRY CONCEPT

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ABSTRACT

Not so long ago the belief that industrial policy contradicts the foundations of neoliberal system was widely accepted. As deindustrialization trends accelerated during the recent decades not only in developed post-industrial economies but also in transition economies, policy makers started to rethink "no industrial policy" policy and consider reindustrialization. The last economic crisis only contributed to this opinion. Accordingly, industrial policy emerged again as an instrument for boosting the economic growth. However, the fact that many "old style" plants generate significant environmental pollution and contribute to the climate change led toward a whole set of new measures - usually structured under the umbrella of the green industry policies. The aim of this paper is to discuss the green industry concept as a possible solution for sustainable economic growth. The most prominent notion for these policies emerged under the circular economy concept which will be explained. Special emphasis will be put on the Croatian green industry development possibilities in comparison to its development in other European Union (EU) member states, China and Japan. Namely, although the EU stands out as a global leader in green industries, corresponding policies and measures are not equally shaped in all EU member states. For example, due to its natural characteristics, Croatia has great opportunities for green industry development, but its policies depart far from that concept. This paper addresses the main reasons for this pattern in Croatia and discusses the potential solutions for the sustainable growth based on analysis of green industrial strategies in "green friendlier" countries.

Keywords: *Croatia, Green industry, Industrial policy, Sustainable economic growth*

1. INTRODUCTION

Industry is generally considered the engine of innovation, productivity and growth. Many figures testify about its importance in the European Union (EU) - 32 million people have a job in European industry; 1 job in manufacturing creates up to 2.5 other jobs across the value-chain; Industry accounts for 68% of the EU's exports; etc. (EC, 2017c). But, as the world is changing, the industry also has to modernise and adjust. Some of the key transformations include development of new technologies which would reduce polluting, embracement of digitisation and technological change, greater resource and energy efficiency, better waste management and investments in a highly skilled workforce. Most recent approach to green industry is circular economy concept. Its main objective is to create a closed loop economy reducing the material intake and waste generation, and that is possible only with discovery of new "green" technologies. The paper analyses how the industrial policy emerged after the Great recession and evolved after the sustainable development became an imperative.

The main contribution of this paper is threefold. First, we gave an assessment of industrial policy importance today. Second, it contains the basic concept of new industrial policies structured under the umbrella of the green industry policies. Lastly, we analyse green growth indicators with special emphasis on their development in Croatia. Waste management (especially separation of waste and its collection) is the first assignment Croatia has to fulfil as an EU member state and much more is yet to be done. The paper is structured as follows. Section 2 revisits the industrial policies importance and significance in economic growth. Green industrial policies presented in section 3 focuses on the new industrial policies concept in the European Union, the circular economy concept related to it and finally the industrial policies in the Japan and China. In section 4 we analyse green growth indicators and opportunities for new industrial policies in Croatia. Finally, section 5 concludes and presents some limitations and recommendations for future research.

2. REVISITING INDUSTRIAL POLICY

There are times when general opinion in economics is that market failures prevail and government interventions are necessary in order to boost the economy. Also, there are times when government failures are considered a great evil and the best thing to do is let markets do its best. Those times alternate and from the Great recession in 2008 we are in times when governments play significant role, especially in the European Union. As the key to emerge from the crisis and to boost economic growth and prosperity industrial policy[1] popped out. Strong industry became one of the key priorities in driving productivity and innovation thus enhancing economic prosperity and the European Commission took the leading role in this industrial turnaround. Many European Commission documents speak in favour of that (see e.g. EC, 2010a, EC, 2010b, EC, 2014a, EC, 2017a, EC, 2017b). The idea behind was to make Europe's industry stronger and competitive on a global market. Europe 2020 agenda (EC, 2010) strives to create smart (based on knowledge and innovation), sustainable (resource efficient, greener) and inclusive (with high-employment) EU economy. One out of seven flagship initiatives to catalyse progress in this Agenda is named "An industrial policy for the globalisation era" which aims to support the development of a strong and sustainable industrial base able to compete globally (EC, 2010, p. 4). In order to ensure that the set goals will be achieved, EU member states should start reindustrialization and industrial restructuring towards modern and sophisticated high-value industries which would employ highly educated workforce. All of the above testifies that change driver is government rather than the sole market. Along with strengthening the industrial base which will provide growth and jobs, the Commission took a new course with industrial policy which will enable the transition to energy- (low-carbon) and resource-efficient economy. Due to reduction in available material and energy resources and environmental degradation (high-carbon emissions) that contributes to the climate change the turn was inevitable. The new contributory objectives are to support use of renewable energy resources to achieve resource efficiency, to introduce waste management practices and to promote new technologies. Jaeger et. al. (2011) was one of the projects initiated with focus on a new pattern of economic growth.

3. GREEN INDUSTRY POLICIES

UNIDO (2011, p. 9) states that "green industry promotes sustainable patterns of production and consumption i.e. patterns that are resource and energy efficient, low-carbon and low waste, non-polluting and safe, and which produce products that are responsibly managed throughout their

[1] The sole term "industrial policy" has different meanings and connotations. It can be any selective government intervention/policy affecting structure of production (Pack & Saggi, 2006) or any policy that affects industry (Chang, 2010). As most of these policies nowadays are horizontal in their implementation the definition of industrial policy is broad so we must not be loaded with the definition.

lifecycle". There are two ways to accomplish this. First, to make existing industries greener and second to create new green industries that help keep the environment safe, e.g. renewable energy technologies. Following this definition, green industry policies are government interventions aiming at promotion of resource efficient and low polluting sectors in order to achieve environmental benefits and sustainable economic growth.

3.1. The basic concept of new industrial policies in the European Union

European Commission is united in opinion that Europe's industry should be holistic and forward-looking. The benefits of it will be universal, but for the implementation of Commission's policies the efforts of all relevant partners including EU institutions, Member States, regions and the industry itself are needed. EU industrial policy is interrelated with many initiatives of which the key ones are the creation of jobs and growth through innovation and investment (the Investment Plan for Europe), the Single Market Strategy, the Capital Markets Union, the Digital Single Market Strategy, the Energy Union, the Circular Economy Action Plan (see Figure 1). All of this is needed in order for Europe to stay a world leader in some industrial sectors such as pharmaceuticals, chemicals or mechanical engineering or to achieve a sustainable growth. Also, this is in line with the idea that incentives should be provided only to "new" activities (Rodrik, 2004, p. 21).

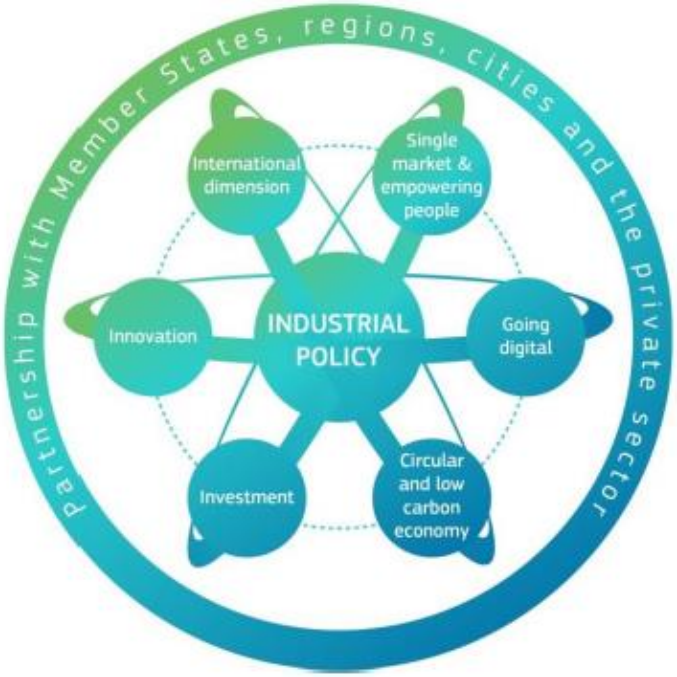

Figure 1: EU industry ecosystem (EC, 2017b, p. 6)

The special emphasis in all EU initiatives is put on the approach of sustainable economic development or green growth which takes the scarce resources into consideration. Green economy is a system that can regenerate itself and work indefinitely without collapsing (this makes economics and environment inseparable entities). All industrial policies considering environment issues (mostly renewable energy, resource utilization, electro-mobility and recycling) can be named *green industrial policies*. In general, green industrial policies strive to make the economy greener, but also to create and stimulate new technologies and skills. EU enacted common environmental and energy policy which take into account environmental policies as well as waste management. Special area considering green industries is "circular and low carbon economy" part of EC's strategies and policies.

As for carbon emission, new CO_2 standards are implemented in order to help manufacturers embrace innovation and supply low-emission vehicles to the market. Also, the Clean Vehicles Directive promotes clean mobility solutions and includes investment support measures for them, as well as common standards (EC, 2017a, p. 3.). On the other side, currently the most attractive part of green industry policies showed to be the circular economy model which is explained in details in the next section.

3.2. The circular economy concept

Circular economy concept deals with two specific problems. First, the reduction in available resources due to population growth and second, climate change due to environmental deterioration. Circular economy is closed, regenerative system in which everything is designed to be repaired, reused, reproduced and recycled as to minimize the environment impact of the resources use. The key methods in circular economy are 3Rs or "reduce, reuse and recycle". By "reduce" the concept refers to minimizing inputs of materials and energy in production process (on a supply side by using renewable resources, increasing energy efficiency) and minimizing consumers' consumption (on the demand side). By "reuse" this concept alludes on idea that someone's waste is someone else's raw material. These two methods must be encouraged simultaneously as the production of convenient materials is necessary in order to be reused (this means the support for the new "green" technologies and materials). And last, recycling means transformation of used materials for a production of new products (also implies promotion of the eco-design directives to improve recyclability). The visualization of simplified model of circular economy is presented on Figure 2. The circle starts with material flows from nature. The first step to achieve this goal is eco-design which enables recycling and reusing products. Production, distribution and consumption/use are the next steps in the circle. If the design was convenient, products can be also repaired or reused, or they can be collected and recycled and then re-enter the circle. Then new products can be produced, distributed, used etc. The basic idea is to create closed loop minimizing material entrance into the circle and reducing residual waste. The core literature on circular economy can be found in Ellen MacArthur Foundation (2012, 2013 and 2014). But the concept of circular economy is evolving and nowadays the generic concept has been refined and developed by the seven schools of thought[2]. First, cradle-to-cradle concept differentiates downcycling whose goal is to recycle materials to make new lower-value products than the original ones and upcycling who advocates the notion that the recycling process should add new value to the recycled materials or items. Therefore, it considers all inputs to be nutrients that can be converted either to biological (non-toxic materials good for nature e.g. food products that can decompose) or technical (materials that can be recycled e.g. metals or minerals) nutrients at the end of their lifecycle. In order to achieve this and to eliminate the concept of waste as we know it, new eco-design of materials and products plays a key role.

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[2] See more on https://www.ellenmacarthurfoundation.org.

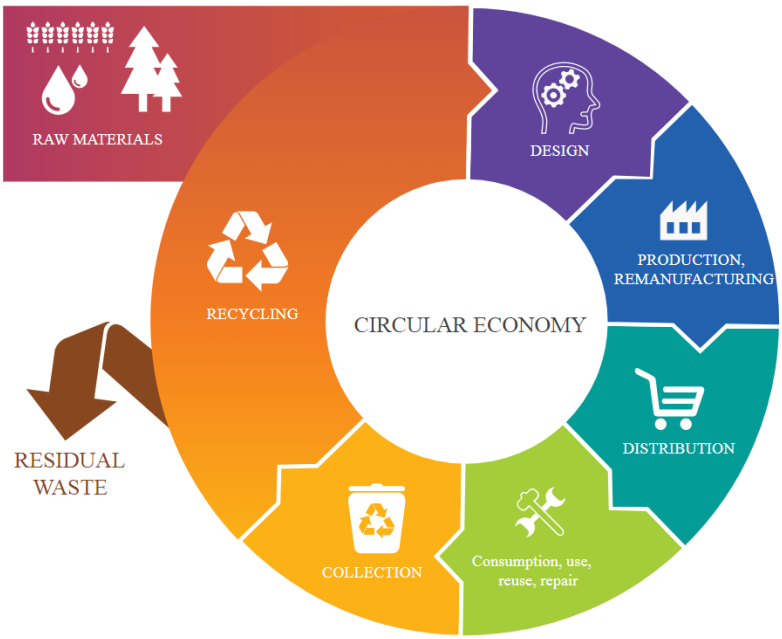

Figure 2: A simplified model of the circular economy (European Parliament, 2015)

Second school of thought is *performance economy* whose basic objective is decoupling growth from resource production. It is based on longer product/goods life, reconditioning activities and waste prevention. Third is *biomimicry*, an approach focused on imitating nature's best designs and processes to solve human problems. Kim et al. (2012) studied a leaf to invent a better solar cell and showed that their design is capable of producing 47 % more electricity than comparable solar cells. Next is *industrial ecology* – interdisciplinary study of material and energy flows regarding industry. As industries are the entities that extract raw materials and use energy to manufacture goods and services we should first understand how industries function so that they can be the first to start the transition to circular economy. Industrial ecology represents innovative organizational scheme which reduces environment impact of industries. In addition, the industrial symbiosis that represents the cooperation between all phases of industrial production to recycling is desirable (Bastein, et al., 2013). The fifth is natural capitalism. Hawken, Lovins, & Lovins (2000) highlight that production and use of human capital as well as natural capital are interlinked. They argue that making this relationship between firms and nature (environment/ecosystem) sustainable allows existence of businesses because natural capital (natural resources and ecosystem) is the one declining and becoming more expensive. Their main idea includes next steps: a) technological changes that make natural resources more productive and reduce their use thus resulting in cost saving; b) application of upcycling concept where waste is eliminated; c) move to a "service-and-flow" business model where the quality and flow of services is improved; d) restore and regenerate natural resources. The blue economy is sixth. This term has somewhat different definition. Many link this term with the green economy (resource effectiveness) in a blue or marine world. In this context of circular economy this term is linked to the book by Gunter Pauli (2010) who gives 100 examples which shift society from scarcity to abundance with what is locally available while solving environmental issues. The blue economy concept connects local characteristics and benefits with the business taking care of environment problems using simpler and cleaner technologies rather than high-energy cost resources. Finally, the last one is regenerative design in all aspects of economy. Regenerative means all inputs should be restorable, renewable or revitalized so the economy becomes a closed loop. This makes it similar to biomimicry approach as the ecological system

we wish to imitate is a closed loop and waste free. The practice showed that the circular economy starts with the waste management in order to solve environmental and resources problems. At latter stages the circular economy becomes a whole new model for sustainable development including whole product lifecycle from production to consumption as it is described above. European Commission also started with the problem of waste prevention and waste reduction, but the idea of circular economy goes even further from 'designing out' waste and "involve innovation throughout the value chain, rather than relying solely on solutions at the end of life of a product" (EC, 2014b, p. 4) The idea of circular economy is also the driving force behind the Paris Agreement for climate action and the Sustainable Development Agenda for 2030 (EC, 2017b). The goal is to enhance green production and clean energy technologies and the newest series of actions on circular economy include strategy on plastics and measures to improve the production of renewable biological resources and their conversion into bio-based products and bio-energy (EC, 2017c, p. 1).

3.3. Green industrial policies in China and Japan

The industrial policy played a major role in Chinese structural changes. In the middle 2000's Chinese industrial policy shifted its focus from the speed of growth to the sustainability of growth with special emphasis on innovation. The first step was "The National Medium- and Long-term Program for Science and Technology Development (2006-2020)" where key areas and frontier technologies were identified for prioritized development (The State Council, 2006). Along with that in 11th Five-Year Plan for China's economic and social development China promoted circular economy as its basic national policy (Zhijun & Nailing, 2007). Also, China had some measures for the long-term promotion of a circular economy (Geng & Doberstein, 2008a, 2008b) as China has high air pollution, environmental degradation and resource scarcity. In 2015 the Made in China 2025 (MIC 2025) plan implemented policy measures for China to become a global leader in manufacturing high-quality and high-technology products stimulating innovation and upgrading manufacturing capabilities (U.S. Chamber of Commerce, 2017). In this plan China, among other, aims to develop green technologies and products. According to Heshmati (2015) China is the only country that practices circular economy as a development strategy on a large scale. In 2016 in the 13th Five-Year Plan eight strategic emerging industries are highlighted (energy-saving environmental protection, next generation IT, biotechnology, advanced manufacturing, new materials, new energy vehicles, digital creative industries and high-tech services) all of which are connected to the green industry concept (Kenderdine, 2017). Fast economic growth in Japan brought serious environmental pollution. That is the reason behind Japan's implementation of green industry acts and policies since 1980s. Some of the policy acts are "Law concerning the promotion of the measures to cope with global warming", "The Kyoto Protocol Target Achievement Plan", "Basic Act on Energy Policy", "The Basic Law to Promote the Establishment of A Recycling-Oriented Society", "Law for the Promotion of Efficient Utilization of Resources" etc. The special emphasis is also on the concept of circular economy and during the transition to it, "Japan managed to overcome the constraints of resources, improve resource utilization, reduce production costs, win new markets, establish the new economic growth pattern, and maintain competitive in the world" (Gao, 2016, p. 1). According to Benton & Hazell (2015) Japan recycles 98 % of its metals and only 5 % of Japan's waste ended up in the ground in 2007, which is admirable.

4. CROATIA IN THE CONTEXT OF GREEN INDUSTRIAL POLICY

Croatia is a country where things often "go with the flow". Croatian population is mostly unaware of the environmental goals we have to achieve as an EU member state and one of the signatories of Paris agreement. Croatia must follow the key decisions/directives enacted in

European Parliament but on the other hand the specific actions are being negotiated domestically. So far Croatia has adopted many national strategies of which the newest are the Croatian Climate Change Adaptation Strategy, the Croatian Low Carbon Development Strategy, Croatian Smart Specialisation Strategy and Croatian Waste Management Plan 2017-2022. The action plans usually take longer to adopt. Therefore, the strategies do not represent main challenges for Croatia but the lack of information, weak industrial creativity and innovation and also the shortage of appropriate technology do. Croatia is a natural (wood, sun, wind and water) abundant country with mostly conserved environment. The main problem is unawareness of the notion that systematic change is needed in order to preserve the environment and to achieve sustainable economy and society. According to the last available data, compared to the EU-28 average, Croatia has lower resource productivity (1.09 vs. 2.08); 19 % lower eco-innovation index; and 42 percentage points lower (3 % vs. 45 %) recycling rate of municipal waste (The EU Resource Efficiency Scoreboard, 2018). Therefore, the problem is arising and it needs to be resolved if Croatia wants economy oriented towards the values promoted by the green economy. OECD green growth indicators measure progress towards the green economy (OECD, 2017) which is inseparable from green industry. We will examine these indicators to get a better picture on the current state of green growth. Data show that no country leads in all indicators – if a country is at the forefront in one set of indicators it is lagging behind in others. In general, according to OECD (2017, p. 4) progress has been insufficient to protect the natural asset base. Figure 3 explores key OECD (2018) data concerning green growth in Japan, China, OECD-Europe[3] and Croatia by the latest available year (the range goes from 2011 to 2015). The first (P-B CO2) and second (D-B CO2) variable represent production-based CO_2 productivity[4] and demand-based CO_2 productivity[5] (GDP per unit of energy-related CO_2 emissions) in USD/kg and they are lowest in China and highest in Croatia. The carbon productivity in most OECD countries has improved as they no longer rise in tandem with growth, but global CO_2 emissions continue to grow, up to 58% from 1990 (OECD, 2017, p. 8). Energy productivity (measured by renewable energy supply in % TPES) is the lowest in Japan and highest in Croatia. Material productivity (in USD/kg) is the lowest in China and highest in Japan while the data for Croatia are missing. In general, in all observed countries the environmental productivity in terms of carbon, energy and materials has improved (except for energy productivity in China).

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[3] Data is not available for the European Union as a group of countries so our analysis focuses on the European OECD countries regardless of their EU membership. This means that countries such as Bulgaria, Cyprus or Latvia are excluded while Norway, Switzerland or Turkey are included in the analysis.

[4] Production-based productivity accounts for CO_2 emissions generated on the national territory, without taking trade flows into account.

[5] Demand-based CO_2 productivity shows the economic value generated per unit of CO_2 emitted to satisfy domestic final demand, irrespective of where production occurred.

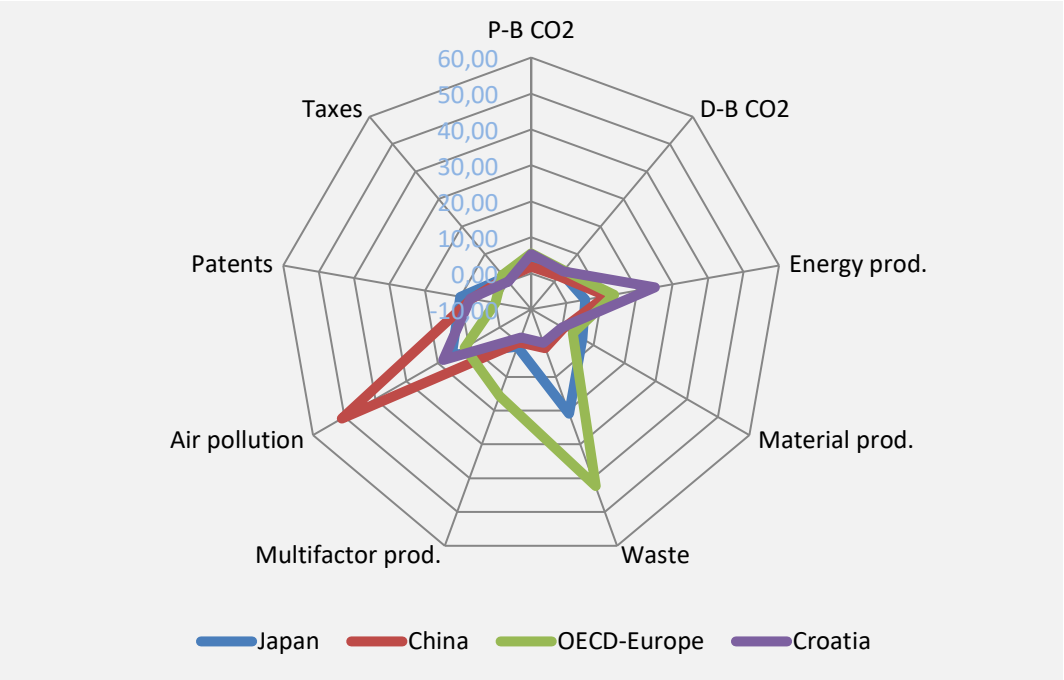

Figure 3: Green growth indicators (OECD.Stat, 2018)

Variable "waste" represents municipal waste recycled or composted (in % of treated waste) and this rate is highest in European OECD countries (up to 42 %) and lowest in China (only 1.5 %). The data for Croatia are missing but, as it is stated above, the Eurostat data shows that the recycling rate is very low. As for (environmentally adjusted) multifactor productivity growth, it is the share of growth that is not explained by labour and capital. It is generally low, while the data for OECD-Europe countries is missing. Air pollution is represented by the mean population exposure to PM2.5 in $\mu g/m^3$ or in other words it represents the proportion of people living in areas with annual concentrations of PM2.5 exceeding the WHO Air Quality Guideline (AQG) value of 10 micrograms per cubic meter. It is highest in China and lowest in Japan. The variable "patents" is represented by the development of environment-related technologies as a % of all technologies. These technologies are needed in order to address climate change and other environmental challenges, and in the observed countries Japan and Europe-OECD countries hold approximately 10 %, while China and Croatia around 6 % of patents. Finally, as for environmentally related taxes (% of GDP) which send important market signals that can influence the behaviour of producers and consumers, the data for Croatia is missing while the highest percentage is in OECD-Europe countries while in general these taxes are still limited compared to taxes on labour or capital. It can be concluded that Croatia "stands in the middle". It is a small country with low industry and thus low pollution. But while the position in developed countries is getting better, the Croatia is stagnating. In order to move towards green growth and thus a green industry Croatia has to show political action which will pursue specific goals and enforce fines for breaking the law. The biggest issue in Croatia is definitely waste management.

5. CONSLUSION

One of the intentions of this paper was to bring the debate about green industrial policies importance and significance in sustainable economic growth. This is hot topic especially in the European Union where many documents and directives are concerning this issue. The special emphasis was put on the circular economy concept which aims to achieve a closed-loop economy with no waste.

Japan and China are on a battlefield for their economies as they are highly polluted countries. And as data shows they are getting better. Croatia is lucky to have small levels of pollution, but the course is just the opposite to the one presented by green growth or circular economy concept. Thus, instead of deterring the status quo, Croatia should start implementing some measures towards green industry and green growth. The special concern is waste management; not only because of the environment deterioration but also because of the fees EU is imposing for non-compliance in agreed quantities. Thus the policy recommendation is to enact some specific laws concerning already enacted strategies and to guarantee the enforcement of fines for breaking the law. The main paper limitation is the availability of data for the green industry and thus the green growth indicators were used. Also, the following paper should study these indicators for Croatia in relation to the European countries and not world (here represented by Japan or China).

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THE USE OF INNOVATIVE APPROACHES IN ASSESSING AND PREDICTING BUSINESS FINANCIAL HEALTH

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ABSTRACT

The paper and the research as its basis are the results of never-ending interest of professionals aimed at the solution of the problem of assessing and predicting business financial health. There are several methods in theory how to measure business financial health. The aim of the paper was to evaluate and predict financial health of the selected sample of businesses applying innovative methods. To reach this aim, the data of the companies operating in the field of heat industry of the Slovak Republic were used. The solution was based on the principles of conventional, modern and innovative approaches to business financial health evaluation and improvement. For the measurement of business financial health we applied financial indicators, financial risks, EVA and relative EVA indicators. In order to predict business financial health we used ex ante models and financial modelling. The results of these indicators and models were confirmed applying mathematical and statistical methods. With the use of mentioned methods and models we can assess and predict financial health of production unit and we can also formulate solutions for financial health enhancement.

Keywords: *Data Envelopment Analysis, Distress, Financial health, Innovative, Methods, Performance, Production unit*

1. INTRODUCTION

In order to maintain the prosperity and competitiveness of a business, it is important to know its financial situation and financial health. The paper deals with the assessment and prediction of business financial health. A variety of diagnostic models have been developed to assess business financial health. These models are based on the application of financial indicators. Various financial indicators (such as indicators of liquidity, activity, profitability, indebtedness, etc.) are used to analyse financial health. These ratios are based on standard financial statements. Calculation of financial ratios is simple, but they take into account just a few factors that affect the overall financial health of analysed business.

2. LITERATURE REVIEW

In these days, the company`s financial health and performance are assessed in three basic ways (Kislingerová, 2011): Evaluation using the set of indicators usually from the five areas of evaluation - liquidity, activity, capital structure, profitability and market value. These groups are mutually independent and they constitute a parallel set of indicators. Some of these measures are key performance indicators (ROA – Return on Assets, ROE – Return on Equity, Current Liquidity, Interest Coverage, Assets Turnover, etc.). The second way is evaluation with the use of a set of indicators arranged in pyramidal decompositions, on the top of which is key synthetic indicator, as for example ROA or ROE, resp. EVA – Economic Value Added. An important pyramidal decomposition in terms of business performance evaluation is INFA model (Neumaierová, Neumaier, 2002), which has been elaborated in the Czech Republic. The third approach is the evaluation with the use of one aggregate indicator, which connects partial

indicators and other statistical data into a single unit. Representative of such aggregate indicator is for example Altman model, Taffler index, Credit score as well as models of above mentioned authors Inka and Ivan Neumaier – IN99, IN01, IN05. These models are also a suitable tool for predicting business financial health. The best known and most utilized modern indicator of financial health and performance measurement is Economic Value Added (EVA). We can summarize that EVA indicator represents a shift towards indicators focused on maximizing value for owners (Šofranková, Čabinová, 2016). Very interesting model for financial health and performance analysis is Dynamic ScoreCard, which is flexible open system of tools, methods of controlling and reports of financial, risk, performance, business value and strategic controlling. The aim of dynamic ScoreCard is to ensure dynamic view of business in order to increase its value (Horváthová et al., 2016; Gallo, 2013). Business performance can be analysed by using matrix system of indicators, in which are applied indicators of inputs and outputs and their various combinations. One of the significant results of matrix model is the definition of new financial indicators. Another positive aspect of this approach is that indicators measuring business efficiency, effectiveness and performance create a network with strong relations between them (Štefko, Gallo, 2015). From this point of view, it is necessary to implement modern indicators of performance and financial health measurement, which are based on market principles not on accounting and proceed from the theory of value management and the acceptance of the internal and external risks (Mařík, Maříková, 2005; Suhányiová, Suhányi, 2011). Despite the existence of these procedures and methods, we still don`t know a satisfactory approach to measure financial health. The most used methods of today include discriminant analysis, logistic regression, decision trees as well as neural networks. However, these methods have limited processing capabilities in terms of the number of the data and database size. Therefore, new approaches arise. These methods eliminate the shortcomings of traditional approaches. Recently, an unusual method of addressing this issue has come into the forefront. Data Envelopment Analysis (DEA) is a non-parametric method that has a number of advantages compared to conventional methods of assessing financial health. This method was originally developed to assess the effectiveness of management and planning of non-profit institutions (for example schools, hospitals, etc.). Later, its use has extended from the calculation of efficiency to other areas, such as assessment of financial health of production unit. With the use of DEA models, we can compare the efficiency and financial health of a large number of production units. This method is based on solving a system of linear programming problems to determine the relative efficiency (financial health) of a number of production units. The basic idea of this method was elaborated by Farel (1957). It was later reformulated by Charnes, Cooper and Rhodes (1978) (DEA CCR), resp. Banker, Charnes and Cooper (1984) (DEA BCC). The aim of this method was to eliminate, resp. exclude subjectivity in the evaluation of efficiency by measuring outputs in relation to inputs. Equally important goal was the comparison of productivity of production units which we call the DMU (Decision Making Unit). Subsequently, model DEA began to apply not only in the area of business efficiency assessment and evaluation, but also in the field of financial health assessment (Mendelová, Bieliková, 2017). The rise of experiments using DEA model to diagnose financial health of production unit was caused by the existence of an intuitive relationship between inefficiency and failure of production units. Methods of DEA application to diagnose financial health of production units can be divided into two approaches. The first one is the use of DEA in the first step of the prediction process, while DEA acts as a tool to create a predictive variable – predictor. The first authors who applied this approach were Xu and Wang (2009). In order to predict financial bankruptcy of companies listed on the Shanghai Stock Exchange, they used degree of efficiency (DEA score) as a predictor. The second approach involves the application of DEA as a separate classification, or more precisely predictive technique. The basic concepts of DEA within this approach differ mainly in understanding Production Possibility Frontier and

defining inputs and outputs. In the first conventional concept outputs are defined as the variables that contribute to the success of a production unit and in terms of mathematical optimization are maximized (for example indicators of liquidity, profitability, etc.). Inputs are variables that increase the risk of bankruptcy and in terms of optimization are minimized (for example debt ratios, cost ratios, liability ratios, etc.). However, there is also second concept, which uses inverse or negative DEA. The inverse DEA involves swapping inputs and outputs of any DEA model (Simak, 2000) and the negative DEA is based on a different definition of Production Possibility Frontier. When creating financial distress frontier of negative DEA, outputs are those variables, which achieve higher values in the production units in financial distress (for example debt ratios, cost ratios, liability ratios, etc.) and inputs are those variables, which achieve lower values in businesses at risk of financial failure. (for example indicators of liquidity, profitability, etc.). The use of the second DEA approach to diagnose financial health of production unit can be found in the work of Feruś (2010), who used DEA to create model for predicting the insolvency risk of construction companies. For the creation of the model were chosen two inputs as the indicators which are minimized (Daily Return Indicators and General Debt Indicator) and four outputs as the indicators which are maximized (Net Profit Indicator, Asset Return Indicator, Individual Assets Return Indicator and Current Liquid Indicator). From the choice of inputs and outputs is evident, that it is a philosophy of conventional DEA approach. Based on these findings we decided to apply input oriented DEA CCR model in this paper. In accordance with the recommendations of several authors, we chose the adequate number of inputs and outputs for the model.

3. DATA AND METHODOLOGY

The research problem of the paper was focused on analysing and predicting the financial health of a production unit. To analyse financial health of a production unit, we used selected financial indicators, EVA indicator and innovative approach to assessing financial health – DEA method. Formulation of the research problem: Is DEA a suitable alternative for measuring and predicting financial health of a production unit by a set of financial indicators? The aim of the research was to assess the possibility of applying this method to selected sample of production units and to identify production units that are in financial distress. Research sample consists of 30 Slovak production units doing a business in the field of heat supply. To solve the research problem and calculate performance of the analysed sample of businesses we used the data from the Register of financial statements (RÚZ, 2017). Analysed businesses are local central heat supply systems, which according to the classification of economic activities SK NACE belong to Steam delivery and cold air distribution. To analyse financial health, we selected financial indicators from the various areas of its assessment: Total Liquidity – TL, Current Liquidity - CL, Return on Assets – ROA, Return on Equity – ROE, Return on Sales – ROS, Equity Ratio – ER, Indebtedness Ratio – IR, Interest Coverage – IC, Interest Expense – IE, Equity to Fixed Assets Ratio – EFAR, Total Assets Turnover Ratio – TATR, Average Collection Period – ACP, Creditors Payment Period - CPP and Cost Ratio – CR. Descriptive statistics for selected financial indicators is shown in Table 1. In addition to above-mentioned financial indicators, we calculated the EVA indicator to confirm the achieved results of financial health, resp. financial distress. For the prediction of financial health, we chose the Altman model, due to its extensive application in Slovak business practice.

Table following on the next page

Table 1 Descriptive statistics for financial indicators (authors)

Variable	Valid N	Mean	Median	Minimum	Maximum	Std. Dev.
ER	30	0.439	0.450	0.017	0.918	0.228
IC	30	1, 340.439	6.585	-5.740	39, 827.320	7, 269.052
EFAR	30	1.018	0.615	0.020	10.440	1.842
ROA	30	0.080	0.059	-0.064	0.299	0.086
ROE	30	0.183	0.088	-0.152	0.803	0.238
ROS	30	0.046	0.041	-0.046	0.183	0.044
CL	30	1.251	1.021	0.006	5.906	1.128
TL	30	1.319	1.061	0.009	5.911	1.110
TATR	30	1.255	0.797	0.408	6.008	1.304
ACP	30	0.221	0.147	0.050	0.921	0.207
CPP	30	0.316	0.301	0.067	0.721	0.180
IR	30	3.841	1.220	0.090	56.610	10.185
IE	30	0.210	0.134	-0.174	0.917	0.250
CR	30	0.942	0.949	0.756	1.048	0.055

Basic DEA models include CCR or CRS (constant returns to scale) DEA models and a BCC DEA models. In this paper we applied CCR model, which assumes constant returns to scale. An innovative approach to the production unit`s financial health analysis was the application of input-oriented DEA CCR model. For its implementation, it was necessary to reduce the number of financial indicators. Therefore we used correlation matrix. The adequate number of financial indicators for DEA CCR model was set based on the recommendation of (Klieštik, 2009), that the number of financial indicators should not exceed one third of the number of studied production units. This model is based on conceptual model. To determine the efficiency of DMU_o for o ∈ {1, . . . , r} using the conceptual model, we address the problem of mathematical programming:

(MPo) Max z = $\frac{v^T \times y_o}{u^T \times x_o}$, subject to $\frac{v^T \times y_j}{u^T \times x_i} \leq 1$, ∀i = 1,……., m, ∀j= 1 . . . … n, u > 0, v > 0 .

$u \in R^m$

$v \in R^n$

Let (u*, v*) be the optimal solution and Eo* = Eo* (u*, v*) the optimal solution of the objective function for the task (MPo). Then DMUo is efficient, if Eo* = 1, otherwise it is inefficient. Eo* represents efficiency ratio. This task may not have a solution due to the constraint u, v > 0. Therefore, this constraint is in some models modified to u, v ≥ 0. In the next part we formulated input-oriented primary and dual CCR model, which we applied in assessing and predicting financial health of the analysed production units. Input-oriented primary model (LP_o):

Max z = $\sum_1^n v_j \times y_{jo}$, subject to $\sum_1^n v_j \times y_{jo} \leq \sum_1^m u_i \times x_{io}$, $\sum_1^m u_i \times x_{io} = 1$, $u_i \geq 0, v_j \geq 0$, o ∈ $(1, \dots\dots\dots, r)$.

Dual model to LP_o model for DMU_o. $o \epsilon$ (1,…….,r), can be according to linear programming theory stated as follows:

Min θ

s.t.

$\sum_1^n \lambda i Xi \leq \theta X_0$, $\sum_1^m \lambda i Yi \geq Y_0$, $\lambda \geq 0$, where λ is n- dimensional vector and θ is the real number.

Model (LD_o) can be expressed also as follows : min { θ | (θ x_o, y_o) ϵ PC}. Model (LD_o) is called input-oriented envelopment CCR model. Using the computed values of λi, we can calculate the target values of inputs and outputs, Production unit need to know these values to increase efficiency. When we solve this linear problem, we get the goal inputs (the difference between X_o and $\sum_1^n \lambda i Xi$), alternatively, we can keep inputs fixed and keep goal outputs $\left(\frac{1}{\theta}\sum_1^m Yi\right)$ (Cornuejols, Trick, 1998).

3.1. Selection of inputs and outputs for CCR model

In line with the CCR application requirements, it was necessary to choose reduced number of financial indicators, which represent inputs and outputs of the model. Since there was significant correlation between indicators (Table 2), apart from the indicator Interest Coverage, it was difficult to choose appropriate indicators. We decided to select seven financial indicators; four of them represent outputs and three inputs of CCR model. As outputs were selected indicators: ROA, TL, TATR, IC. Selected group of indicators covers all areas of production unit`s financial health assessment, while selected indicators are key indicators of financial health assessment and correlation between them is partially eliminated. As inputs were selected these indicators: CPP, IR, CR.

Table 2: Correlation matrix for selected group of indicators (authors)

	ER	IC	EFAR	ROA	ROE	ROS	CL	TL	TATR	ACP	CPP	IR	IE	CR
ER	1.0000	.2548	.3022	-.0028	-.4940	-.1709	.5981	.6061	.2011	-.0288	-.4558	-.4999	-.3015	.1651
	p= ---	p=.174	p=.105	p=.988	p=.006	p=.367	p=.000	p=.000	p=.287	p=.880	p=.011	p=.005	p=.105	p=.383
IC	.2548	1.0000	.0678	.0529	-.0596	-.0303	.1596	.1547	.1176	-.0960	-.2069	-.0653	-.1597	.1136
	p=.174	p= ---	p=.722	p=.781	p=.754	p=.874	p=.399	p=.414	p=.536	p=.614	p=.273	p=.732	p=.399	p=.550
EFAR	.3022	.0678	1.0000	.0652	-.1207	-.1738	.3482	.3453	.7611	-.0573	-.3736	-.1544	-.2415	.1716
	p=.105	p=.722	p= ---	p=.732	p=.525	p=.358	p=.059	p=.062	p=.000	p=.764	p=.042	p=.415	p=.199	p=.364
ROA	-.0028	.0529	.0652	1.0000	.6629	.6663	.1381	.1655	.5214	-.1439	-.4329	-.1079	-.3676	-.6631
	p=.988	p=.781	p=.732	p= ---	p=.000	p=.000	p=.467	p=.382	p=.003	p=.448	p=.017	p=.570	p=.046	p=.000
ROE	-.4940	-.0596	-.1207	.6629	1.0000	.6186	-.0892	-.0595	.1928	-.0156	.0066	.3331	-.1848	-.6111
	p=.006	p=.754	p=.525	p=.000	p= ---	p=.000	p=.639	p=.755	p=.307	p=.935	p=.972	p=.072	p=.328	p=.000
ROS	-.1709	-.0303	-.1738	.6663	.6186	1.0000	.0274	.0395	-.0625	.0684	-.0278	-.0831	-.2951	-.9932
	p=.367	p=.874	p=.358	p=.000	p=.000	p= ---	p=.886	p=.836	p=.743	p=.719	p=.884	p=.662	p=.113	p=0.00
CL	.5981	.1596	.3482	.1381	-.0892	.0274	1.0000	.9966	.2465	.2427	-.4970	-.1750	-.3493	-.0323
	p=.000	p=.399	p=.059	p=.467	p=.639	p=.886	p= ---	p=0.00	p=.189	p=.196	p=.005	p=.355	p=.058	p=.865
TL	.6061	.1547	.3453	.1655	-.0595	.0395	.9966	1.0000	.2582	.2464	-.4945	-.1824	-.3549	-.0450
	p=.000	p=.414	p=.062	p=.382	p=.755	p=.836	p=0.00	p= ---	p=.168	p=.189	p=.005	p=.335	p=.054	p=.813
TATR	.2011	.1176	.7611	.5214	.1928	-.0625	.2465	.2582	1.0000	-.2580	-.5931	-.1290	-.4297	.0660
	p=.287	p=.536	p=.000	p=.003	p=.307	p=.743	p=.189	p=.168	p= ---	p=.169	p=.001	p=.497	p=.018	p=.729
ACP	-.0288	-.0960	-.0573	-.1439	-.0156	.0684	.2427	.2464	-.2580	1.0000	.5630	-.0419	.1780	-.0807
	p=.880	p=.614	p=.764	p=.448	p=.935	p=.719	p=.196	p=.189	p=.169	p= ---	p=.001	p=.826	p=.347	p=.671
CPP	-.4558	-.2069	-.3736	-.4329	.0066	-.0278	-.4970	-.4945	-.5931	.5630	1.0000	.1303	.4452	.0211
	p=.011	p=.273	p=.042	p=.017	p=.972	p=.884	p=.005	p=.005	p=.001	p=.001	p= ---	p=.493	p=.014	p=.912
IR	-.4999	-.0653	-.1544	-.1079	.3331	-.0831	-.1750	-.1824	-.1290	-.0419	.1303	1.0000	.2755	.0746
	p=.005	p=.732	p=.415	p=.570	p=.072	p=.662	p=.355	p=.335	p=.497	p=.826	p=.493	p= ---	p=.141	p=.695
IE	-.3015	-.1597	-.2415	-.3676	-.1848	-.2951	-.3493	-.3549	-.4297	.1780	.4452	.2755	1.0000	.2901
	p=.105	p=.399	p=.199	p=.046	p=.328	p=.113	p=.058	p=.054	p=.018	p=.347	p=.014	p=.141	p= ---	p=.120
CR	.1651	.1136	.1716	-.6631	-.6111	-.9932	-.0323	-.0450	.0660	-.0807	.0211	.0746	.2901	1.0000
	p=.383	p=.550	p=.364	p=.000	p=.000	p=0.00	p=.865	p=.813	p=.729	p=.671	p=.912	p=.695	p=.120	p= ---

3.2. Input oriented DEA CCR model for DMU1

With the use of selected indicators we formulated the following dual linear programming model:

$$Min\ z = \theta_1 - 0.00000001\ s_1^- - 0.00000001 s_2^- - 0.00000001 s_3^- - 0.00000001 s_4^+ - 0.00000001 s_5^+ - 0.00000001 s_6^+ - 0.00000001 s_7^+$$

subject to

$$0.975\lambda_1 + 0.997\lambda_2 + 0.998\lambda_3 + 0.990\lambda_4 + 0.928\lambda_5 + 0.976\lambda_6 + 0.991\lambda_7 + 1.048\lambda_8 + 0.884\lambda_9 + 0.928\lambda_{10} + 0.933\ \lambda_{11} + 0.941\ \lambda_{12} + 0.966\lambda_{13} + 0.988\lambda_{14} + 0.894\ \lambda_{15} + 0.958\ \lambda_{16} + 0.947\ \lambda_{17} + 0.756\ \lambda_{18} + 0.958\ \lambda_{19} + 0.899\ \lambda_{20} + 0.920\ \lambda_{21} + 0.951\ \lambda_{22} + 0.854\ \lambda_{23} + 0.981\ \lambda_{24} + 0.986\ \lambda_{25} + 0.883\ \lambda_{26} + 0.908\ \lambda_{27} + 0.923\ \lambda_{28} + 0.931\ \lambda_{29} + 0.965\ \lambda_{30} + s_1^- - 0.975\theta_1 \leq 0$$

$$0.12\lambda_1 + 0.72\lambda_2 + 0.54\lambda_3 + 0.37\lambda_4 + 0.41\lambda_5 + 0.44\lambda_6 + 0.25\lambda_7 + 0.35\lambda_8 + 0.25\lambda_9 + 0.32\lambda_{10} + 0.35\ \lambda_{11} + 0.07\ \lambda_{12} + 0.25\lambda_{13} + 0.07\lambda_{14} + 0.29\ \lambda_{15} + 0.15\ \lambda_{16} + 0.62\ \lambda_{17} + 0.21\ \lambda_{18} + 0.12\ \lambda_{19} + 0.54\ \lambda_{20} + 0.11\ \lambda_{21} + 0.09\ \lambda_{22} + 0.60\ \lambda_{23} + 0.36\ \lambda_{24} + 0.19\ \lambda_{25} + 0.51\ \lambda_{26} + 0.12\ \lambda_{27} + 0.33\ \lambda_{28} + 0.29\ \lambda_{29} + 0.48\ \lambda_{30} + s_2^- - 0.12\theta_1 \leq 0$$

$$0.34\lambda_1 + 0.93\lambda_2 + 2.37\lambda_3 + 0.67\lambda_4 + 0.76\lambda_5 + 1.11\lambda_6 + 0.25\lambda_7 + 1.19\lambda_8 + 1.25\lambda_9 + 1.77\lambda_{10} + 2.69\ \lambda_{11} + 0.46\ \lambda_{12} + 1.15\lambda_{13} + 0.81\lambda_{14} + 0.45\ \lambda_{15} + 0.19\ \lambda_{16} + 1.81\ \lambda_{17} + 1.19\ \lambda_{18} + 1.66\ \lambda_{19} + 1.82\ \lambda_{20} + 0.96\lambda_{21} + 0.09\ \lambda_{22} + 8.22\lambda_{23} + 56.61\ \lambda_{24} + 4.54\ \lambda_{25} + 8.05\ \lambda_{26} + 2.08\ \lambda_{27} + 1.93\ \lambda_{28} + 5.1\ \lambda_{29} + 4.79\ \lambda_{30} + s_3^- - 0.34\theta_1 \leq 0$$

$$0.10\lambda_1 + 0.01\lambda_2 + 0.01\lambda_3 + 0.01\lambda_4 + 0.04\lambda_5 + 0.02\lambda_6 + 0.01\lambda_7 - 0.06\lambda_8 + 0.12\lambda_9 + 0.04\lambda_{10} + 0.08\ \lambda_{11} + 0.27\ \lambda_{12} + 0.06\lambda_{13} + 0.07\lambda_{14} + 0.09\ \lambda_{15} + 0.03\ \lambda_{16} + 0.03\ \lambda_{17} + 0.26\lambda_{18} + 0.07\ \lambda_{19} + 0.08\ \lambda_{20} + 0.25\lambda_{21} + 0.04\ \lambda_{22} + 0.12\lambda_{23} + 0.03\ \lambda_{24} + 0.04\ \lambda_{25} + 0.12\ \lambda_{26} + 0.30\ \lambda_{27} + 0.06\ \lambda_{28} + 0.08\ \lambda_{29} + 0.02\ \lambda_{30} + s_4^+ \geq 0.10$$

$$2.22\lambda_1 + 1.40\lambda_2 + 0.01\lambda_3 + 0.66\lambda_4 + 0.65\lambda_5 + 0.64\lambda_6 + 1.54\lambda_7 + 0.58\lambda_8 + 1.00\lambda_9 + 1.57\lambda_{10} + 0.71\ \lambda_{11} + 1.74\ \lambda_{12} + 0.62\lambda_{13} + 2.31\lambda_{14} + 0.77\ \lambda_{15} + 2.80\ \lambda_{16} + 1.83\ \lambda_{17} + 1.83\lambda_{18} + 1.53\lambda_{19} + 0.46\ \lambda_{20} + 2.28\lambda_{21} + 5.91\ \lambda_{22} + 1.42\lambda_{23} + 0.64\ \lambda_{24} + 1.12\ \lambda_{25} + 0.44\ \lambda_{26} + 1.35\lambda_{27} + 0.52\ \lambda_{28} + 0.65\ \lambda_{29} + 0.36\ \lambda_{30} + s_5^+ \geq 2.22$$

$$2.05\lambda_1 + 0.51\lambda_2 + 0.48\lambda_3 + 0.45\lambda_4 + 0.52\lambda_5 + 0.50\lambda_6 + 0.41\lambda_7 + 1.52\lambda_8 + 0.88\lambda_9 + 0.46\lambda_{10} + 0.98\ \lambda_{11} + 4.54\ \lambda_{12} + 1.50\lambda_{13} + 6.01\lambda_{14} + 0.74\ \lambda_{15} + 0.74\ \lambda_{16} + 0.44\ \lambda_{17} + 0.98\lambda_{18} + 1.34\lambda_{19} + 0.58\ \lambda_{20} + 3.05\lambda_{21} + 0.89\lambda_{22} + 0.73\lambda_{23} + 0.63\ \lambda_{24} + 0.85\ \lambda_{25} + 0.94\ \lambda_{26} + 3.05\lambda_{27} + 0.44\ \lambda_{28} + 1.02\ \lambda_{29} + 0.43\ \lambda_{30} + s_6^+ \geq 2.05$$

$$39\ 827\lambda_1 + 1.64\lambda_2 + 1.09\lambda_3 + 1.58\lambda_4 + 23.81\lambda_5 + 7.41\lambda_6 + 2.21\lambda_7 - 5.74\lambda_8 + 7.11\lambda_9 + 5.14\lambda_{10} + 7.52\ \lambda_{11} + 0\lambda_{12} + 9.28\lambda_{13} + 126.7\lambda_{14} + 16.81\ \lambda_{15} + 23.18\ \lambda_{16} + 6.06\ \lambda_{17} + 14.86\lambda_{18} + 7.41\lambda_{19} + 3.66\ \lambda_{20} + 34.92\lambda_{21} + 0\lambda_{22} + 4.56\lambda_{23} + 1.83\lambda_{24} + 1.53\ \lambda_{25} + 17.77\ \lambda_{26} + 52.06\lambda_{27} + 2.53\ \lambda_{28} + 7.64\ \lambda_{29} + 3.31\ \lambda_{30} + s_7^+ \geq 39\ 827$$

$$\lambda 1 + \lambda 2 + \lambda 3 + \lambda 4 + \lambda 5 + \lambda 6 + \lambda 7 + \lambda 8 + \lambda 9 + \lambda 10 + \lambda 11 + \lambda 12 + \lambda 13 + \lambda 14 + \lambda 15 + \lambda 16 + \lambda 17 + \lambda 18 + \lambda 19 + \lambda 20 + \lambda 21 + \lambda 22 + \lambda 23 + \lambda 24 + \lambda 25 + \lambda 26 + \lambda 27 + \lambda 28 + \lambda 29 + \lambda 30 .- \text{free}$$

$$\lambda 1, \lambda 2, \ldots\ldots\ldots, \lambda 30 \geq 0$$

$$s_1^-, s_2^-, s_3^- \geq 0$$

$$s_4^+, s_5^+, s_6^+, s_7^+ \geq 0$$

4. RESULTS AND DISCUSSION

The input analysis of selected sample of production units shows that these production units have problems with liquidity and profitability. They are funded mainly by equity. The average indebtedness of these production units is at the level of 56%, while the majority of it is current debt. Their average value of Average Collection Period is 79 days and average value of Creditors Payment Period is 115 days. From the 30 analysed production units, 14 production units achieved positive value of the EVA indicator and 16 production units achieved the negative value of this indicator. The highest value of the EVA indicator was 1 mil. € and the lowest value was - 10 mil. €. Based on these results we can say that these production units have problems with achieving optimal performance. Table 3 shows the ranking of production units` financial health based on average values of the EVA indicator.

Table following on the next page

Table 3 Ranking of production units` performance (authors)

Ranking	EVA	Business	Ranking	EVA	Business
1	1, 030, 459.04	DMU27	16	-62, 354.13	DMU30
2	680, 302.84	DMU18	17	-65, 433.47	DMU25
3	578, 664.36	DMU23	18	-171, 040.64	DMU13
4	405, 066.84	DMU26	19	-381, 744.28	DMU28
5	218, 376.07	DMU1	20	-444, 771.66	DMU16
6	207, 150.04	DMU12	21	-543, 312.24	DMU20
7	162, 527.71	DMU21	22	-601, 006.17	DMU22
8	156, 363.52	DMU19	23	-868, 713.57	DMU8
9	139, 277.75	DMU10	24	-961, 824.52	DMU15
10	106, 125.07	DMU9	25	-1, 646, 568.88	DMU7
11	92, 659.24	DMU11	26	-2, 525, 477.51	DMU2
12	85, 311.65	DMU29	27	-2, 639, 398.38	DMU6
13	20, 151.42	DMU24	28	-3, 121, 312.82	DMU5
14	15, 386.69	DMU14	29	-6, 659, 719.95	DMU4
15	-53, 951.18	DMU17	30	-10, 767, 355.59	DMU3

To analyse future success or failure of production units we used Altman model (Altman, 1968). We chose this model because it is one of the most used models for assessing future success or failure of Slovak businesses.

Table 4 Results of Altman model (authors)

Business	**DMU1**	**DMU2**	**DMU3**	**DMU4**	**DMU5**	**DMU6**	**DMU7**	**DMU8**	**DMU9**	**DMU10**
Altman model	3.96	1.76	0.73	1.08	1.24	0.91	2.17	1.56	1.63	0.90
Classification	NB	GA	B	B	GA	B	GA	GA	GA	B
Business	**DMU11**	**DMU12**	**DMU13**	**DMU14**	**DMU15**	**DMU16**	**DMU17**	**DMU18**	**DMU19**	**DMU20**
Altman model	1.47	6.84	2.22	7.32	2.00	3.21	1.03	2.47	1.86	0.99
Classification	GA	NB	GA	NB	GA	NB	B	GA	GA	B
Business	**DMU21**	**DMU22**	**DMU23**	**DMU24**	**DMU25**	**DMU26**	**DMU27**	**DMU28**	**DMU29**	**DMU30**
Altman model	4.81	5.99	1.55	0.66	1.36	1.18	4.47	0.99	1.32	0.65
Classification	NB	NB	GA	B	GA	B	NB	B	GA	B

Note:
NB - Non-bankrupt
GA- Gray area
B- Bankrupt

Results of the Altman model show that 7 production units from the analysed sample classified in the position "non-bankrupt", 13 located in "gray area" and 10 production units classified in the position "bankrupt". There are 6 businesses (from 14) which achieved positive value of the EVA indicator and at the same time position "non-bankrupt" in Altman model. We found out that positive value of the EVA indicator is not a guarantee that production unit has no presumption of bankruptcy. In the "gray area" there are 5 production units, which achieve positive value of the EVA indicator. The remaining 3 production units with a positive value of the EVA indicator show bankruptcy assumptions. On the other hand, 2 production units from the analysed sample, which achieved negative value of the EVA indicator, located according to Altman model at the position "non-bankrupt". For the final evaluation of production units we calculated efficiency ratio (θ) applying DEA CCR method (see Table 5).

Table 5 Values of efficiency ratio calculated applying DEA CCR (authors)

	CR	CPP	IR	ROA	TL	TATR	IC	θ
DMU1	0.97505	0.1201	0.34	0.1037	2.2249	2.05	39827	1
DMU2	0.99717	0.7214	0.93	0.0105	1.4019	0.506	1.64	0.258
DMU3	0.99811	0.5391	2.37	0.0129	0.0088	0.481	1.09	0.086
DMU4	0.99046	0.3716	0.67	0.0145	0.6572	0.447	1.58	0.151
DMU5	0.92849	0.4064	0.76	0.041	0.6529	0.52	23.81	0.204
DMU6	0.97613	0.4385	1.11	0.015	0.6393	0.502	7.41	0.156
DMU7	0.99094	0.2531	0.25	0.007	1.5395	0.408	2.21	0.269
DMU8	1.04837	0.3464	1.19	-0.0643	0.5848	1.52	-5.74	0.238
DMU9	0.884	0.2459	1.25	0.121	1.0018	0.884	7.11	0.447
DMU10	0.9283	0.3154	1.77	0.0449	1.5675	0.459	5.14	0.346
DMU11	0.93269	0.3475	2.69	0.0779	0.7054	0.982	7.52	0.304
DMU12	0.94059	0.0671	0.46	0.2703	1.7391	4.54	0	1
DMU13	0.96619	0.2516	1.15	0.0574	0.6178	1.502	9.28	0.298
DMU14	0.98781	0.0682	0.81	0.074	2.311	6.008	126.7	1
DMU15	0.89373	0.2852	0.45	0.0856	0.7662	0.736	16.81	0.363
DMU16	0.95817	0.1512	0.19	0.0327	2.7986	0.744	23.18	0.515
DMU17	0.94794	0.6234	1.81	0.0304	1.8302	0.439	6.06	0.35
DMU18	0.75637	0.2127	1.19	0.2591	1.8313	0.982	14.86	1
DMU19	0.95801	0.1207	1.66	0.0652	1.5306	1.339	7.41	0.424
DMU20	0.89904	0.5357	1.82	0.0829	0.4621	0.577	3.66	0.274
DMU21	0.91961	0.1051	0.96	0.2526	2.2772	3.048	34.92	1
DMU22	0.95065	0.0869	0.09	0.044	5.9106	0.89	0	1
DMU23	0.85449	0.5984	8.22	0.118	1.4217	0.733	4.56	0.516
DMU24	0.98116	0.3585	56.61	0.0261	0.644	0.63	1.83	0.18
DMU25	0.98579	0.1881	4.54	0.0405	1.1209	0.849	1.53	0.281
DMU26	0.8836	0.5142	8.05	0.1177	0.4359	0.938	17.77	0.399
DMU27	0.90769	0.115	2.08	0.299	1.3546	3.054	52.06	1
DMU28	0.92272	0.328	1.93	0.0596	0.5218	0.438	2.53	0.215
DMU29	0.93051	0.2866	5.1	0.0814	0.6545	1.018	7.64	0.305
DMU30	0.96497	0.4827	4.79	0.0231	0.3647	0.432	3.31	0.119

The DMU1 has good financial health. Its positive rating can be caused by a high level of Interest Coverage, since this production unit does not pay interest expense. DMU1 located according to Altman model at the position "non-bankrupt" and achieved positive value of the EVA indicator. Efficiency ratio "1" achieved also DMU12, DMU14, DMU18, DMU21, DMU22, DMU27. From the perspective of DEA CCR model we can say that these production units have good financial health. By comparing the results of DEA CCR and Altman model, we found out that those businesses which achieved efficiency ratio "1" reached also position "non-bankrupt" according to Altman model. The only exception is DMU16, which located in position "non-bankrupt" according to Altman model, but achieved efficiency ratio 0.515. More detailed analysis revealed that it was caused by value of Return on Equity. We can conclude that profitability is a significant area of financial health assessment as well as the assumption for future prosperity of production unit. Based on more detailed analysis and calculations we found out, that production units which have low financial health also achieve negative value of the EVA indicator, so they are inefficient. We also confirmed that from the financial health frontier 0.2 downwards, all production units are inefficient and threatened with bankruptcy. In the range 0.3-0.5 there is the gray zone and we cannot definitely say whether production units are financially healthy or threatened with bankruptcy. Similar results were obtained applying Altman model. Within this range, production units achieved positive or negative EVA.

Finally, we can use values of λi and calculate goal inputs and goal outputs, for example for DMU2 which efficiency ratio is θ= 0.258. The solution of LDo model was $\lambda_4 = 0.052$ and λ_{22} = 0.2168 for DMU2. With the use of these values we calculated goal financial indicators in order to reach higher value of θ. The goal financial indicators using the reference production units are shown in Table 6.

Table 6 Goal financial indicators for DMU2`s (authors)

Financial indicator	Actual values	Goal values
CR	0.997	0.739
CPP	0.721	0.683
IR	0.930	0.876
ROA	0.011	0.040
TL	1.402	5.095
TATR	0.506	0.837
IC	1.640	0.318

We should point out that model chose DMU22, which value of Interest Coverage was equal to null, as the reference production unit. Based on it, model modified (decreased) IC value even for DMU2, which was not desirable. Since DMU22 showed also the high Total Liquidity, the value of this indicator was modified in the same way. Based on the above-mentioned we can say that in order to obtain relevant optimal values of inputs and outputs, it is necessary to exclude critical values of the indicators from database.

5. CONCLUSION

DEA is a relatively new (compared to statistical and other methods) nonparametric method, which is one of the possible approaches to assessing the efficiency of production units. In contrast to traditional methods for efficiency evaluation, this method allows an individual assessment of a production unit with respect to whole sample, which is one of its greatest benefits. In addition to distribution of units to efficient and inefficient ones, we can identify the source of inefficiency for units, which were classified as inefficient. We can also determine the way in which a unit can achieve the efficiency frontier by decrease, resp. increase in inputs or outputs (depending on the orientation of the model). Other advantage of this method is the possibility to identify a "pattern" for an inefficient unit. This pattern is an efficient unit with a similar combination of inputs and outputs. Important advantage of DEA is also the possibility to analyse and predict financial health of production unit. Last but not least, the advantage of this method is the possibility of using a software solution that is user-friendly. The disadvantage of this method is a deterministic approach – the direct assumption about the type of returns (constant returns to scale – CCR model, variable returns to scale – BCC model). The statistical testing of the significance of individual inputs and outputs within this method is not as elaborated as for example in econometric analysis yet. However, on the other hand, it is an area where we can expect further development, which will certainly lead to improvement of this approach.

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Z GENERATION IN CORPORATE ENVIRONMENT. HOW TO ADDRESS IT?

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ABSTRACT

Business organizations are experiencing more and more challenges in business environment addressing and engaging their employees. The tools and mechanisms that were working and applicable for the X and Y generations are not as efficient as expected or even in many accessions causing negative impact to the associates between 20 and 25 years old. This paper aims to present a study, which gives guidance what to expect from the innovators, the young Z generation. The study has been conducted in Bulgaria, with 15 international companies with offices in Bulgaria and local business. All of the participating organizations are fast growing on the Bulgarian market with more than 1000 employees in the country. The primary focus of the research is to outline the personality profiles of Z generation vs. X and Y generations. More specifically, what are the expectations of the Z generation representatives, how they perceive the business environment and what can motivate them to be engaged and contribute in a team or company. The Bulgarian business leaders are sharing their challenges with decreasing employee engagement[1], employee satisfaction, increasing attrition and operational efficiencies within employees' population representing Z generation. The organizations are conducting internal surveys within their global structures, but also participating in researches on the local market in Bulgaria to cross check the findings and the trends. Local cultural differences are influencing the organizational culture and trends of the business. This paper analyses the results related to the Bulgarian market concerning X, Y and Z generations and provides further recommendations as to how to address the findings resulting from the survey.

Keywords: *business communication, change management, multi-cultural business environment, people development, youth expectations, Z generation*

1.WHO ARE THEY

Generation X, Y and Z are three demographic cohorts with no precise dates for when each of them starts and ends. Typically, demographers and researchers are using ranging of birth years to distinguish these three generations. Generation X is the predecessor of Y Generation. For reference, they are born between mid-60's and early 80's of 20th century. Representatives of the X Gen are grown like "latchkey children". These are children with little parental care, due to the fact that both parents are occupied at work. The children were spending long hours after school by themselves at home with missing parent or adult supervision, hence Generation X is considered as more peer-oriented than previous generations. In terms of working environment and expectations, X Gen is striving for better work-live balance. The Generation Y (also known as millennial generation) is born between 1980 and mid-90's to early 2000. The era of this generation is marked by an increased use and familiarity with digital communications, media, and advanced technologies. Globally the high levels of unemployment rates among youth, caused by the Great Recession, has influenced Y Generation in terms of their attitude toward work. In terms of work attitude, they are characterized with a preference for a flat corporate culture, an emphasis on work-life balance and social consciousness. The millennials are getting more and more significant part of the employed labor force. These millennials are forming already more than 25% of the workforce in US and account for more than the half of the

[1] AON Hewitt, Engagement survey, 2015 and 2016

population in India, whereas in 2016 in Bulgaria due the demographic crisis they form above 50% of the employed human resources. Z Generation also known as iGen, Digital Natives, Gen Tech, Net Gen, Post-Millennials, are the demographic cohort born after the millennials. Is Generation Z different to the past generations? It is true to state that some of the attributes and behavior of this generation can be explain by their age and relative lack of responsibilities. The behavior and priorities change as people age, but Gen Z use of technologies sets them apart. One of their defining characteristics is their affinity with the digital world. They have grown up with smartphones, laptops, broadband and social media, being the norm. They expect instant access to information. The behavior of Z Generation is emphasizing on their personal needs, rather on the organizational goals. The global trends are showing that by 2020 Generation Y and Z will form more than 50% of the global work force. In combination with rapidly developing technologies, it requires the preparation of the business in reshaping and adjusting the HR management systems. They should be focused to address adequately the need of these two generations in terms of working environment and culture in order to retain them as long as possible and to benefit of their qualification and capabilities to maximum extent by increasing business productivity and efficiencies. Attracting and retaining the best of these millennial and Z Gen workers is becoming a critical task for the business and HR management. Experiencing challenges and the global trends of youth generation employees' behavior on the Bulgarian market, companies from different industries jointly participate in survey conducted by Hill International in order to provide answers, accounting the cultural and economic specifics, what the expectations are of Z Gen as future employees in these organizations.

2. COMPETENCE ANALYSIS

In October 2016, Hill International rolls out competence analysis study among 15 business organizations operating in Bulgaria and representing local and international business affiliates. In the survey participated 1636 employees that were distributed in the following way in the scale of generations: 33% representing Generation X, 38% - Generation Y and 29% classified under Generation Z.

Generations:	Age	Participants number	% in Distribustion	male in %	female in %
Genration X	38-50 years old	538	33%	30%	21%
Genration Y	25-37 years old	623	38%	51%	50%
Genration Z	19-24 years old	475	29%	17%	26%
		1636	**100%**	**48%**	**52%**

Table 1: Demographics (Hill International study, 2016)

The survey utilizes Strsutured Personality Inventrory with 12 ascales, listed in table 2 below:

Table following on the next page

Scale	Definition
Scale 1	Contact behavior
Scale 2	Goal and conflict management
Scale 3	Social orientation
Scale 4	Tendency of mood
Scale 5	Level of activity
Scale 6	Object/subject focus
Scale 7	Communication style
Scale 8	Risk orientation
Scale 9	Self-estimation
Scale 10	Tension level
Scale 11	Expectations attitude
Scale 12	Self-regularization

Table 2: Scale of structured personality inventory (Hill International study, 2016)

The survey is focusing on occupational interest profile in two specific areas: working place and business area. The reliability of the index calculated by means of Cronbach Alpha is 0.82 on average for structured personality inventory and 0.78 for occupational interest profile.

2.1. Personality profiles of z generation vs. X and y generations

Since the HR, practice and management techniques in business environment are have longer experience and implemented respective process and standards for management of X and Y Generations this study is specifically focusing on the differences with Generation Z. The index in use is expressing difference in four categories: highly expressed difference with 3+, very significant difference in the range of 2,5 and 3,0; significant difference between 2,0 and 2,5; and less significant difference, which is below 2,0.

Scale	Scale 1	Scale 2	Scale 3	Scale 4	Scale 5	Scale 6	Scale 7	Scale 8	Scale 9	Scale 10	Scale 11	Scale 12
Generation	Contact behavior	Goal and conflict management	Social orientation	Tendency of mood	Level of activity	Object/subject focus	Communication style	Risk orientation	Self-estimation	Tension level	Expectations attitude	Self-regularization
Gen X	30.96	27.23	45.35	24.81	28.57	35.61	32.32	31.40	24.31	46.90	36.69	21.93
Gen Y	30.25	29.22	44.28	26.67	28.89	36.92	32.46	31.68	26.50	45.66	36.94	23.12
Gen Z	33.00	31.45	42.03	30.31	31.22	37.94	34.29	33.02	30.45	42.08	34.35	24.64

Table 3: Gen X,Y and Z in Scale of structured personality inventory (Hill International study, 2016)

In the group of highly expressed differences are falling the following categories: self-estimation, tension level and tendency of mood. They are with higher than 3.0-difference index and based on the analysis they are leading to the flowing conclusions: Generation Z in terms of self-confidence is much less self-confident, not sure in their own abilities, very sensitive to criticism, and afraid of mistakes. Compared to X and Y Generations, Z's are significantly less relaxed, they get upset easier in stressful situations, they have the tendency to get impatient very easy, if something is not proceeding with the fast pace as expected by them and usually under pressure that have difficulties to 'turn off'. Tendency of mood scale in Z Gen is conforming that they are significantly more sensitive. They tend to get easily distracted and feel insecure more than X's and Y's. Vert often they judge things based on current mood, which is swinging very often. Moreover, at the same time they start many activities simultaneously. Two scales of personality are classified in the category of very significant difference. In the range between 2.5 and 3.0 index are presented contact behavior and expectations attitude. Compared to X Generation and Millennials, Post-Millennials are less outgoing.

They are introverts and very difficult to get into contact with. For them the intensity and quality of the contacts are more important than the quantity. They are internally oriented and enjoy being alone. Such employees prefer to send you and e-mail or chat with you via messenger rather than come to your office, no matter if it is just the neighbor door. When it comes to expectations attitude, Z Gen is less trusting, shows skeptical and critical attitude toward others, dislikes being dependent on others and get suspicious easily. The index difference between 2.0 and 2.5 is capturing Generation Z significantly differs to the previous cohorts in terms of level of activity, social orientation and goal- and conflict managements. Concerning level of activity, Generation Z is less: active, initiative, decisive, solution-oriented and dynamic. In Social orientation the new generation is characterized as less selfless, that takes care not be taken advantage of and not being unconditionally helpful. Regarding goal- and conflict management they are less assertive, willing to compromise and might fall to represent even fully justified claims with necessary emphasis. Less significant difference (index below 2) with the other two generations is observed in communication style, risk and change orientation, self-regulation, object, and subject focus. In terms of communication style, Z Gen prefers to keep distance and dislikes to give private information. Representatives of Generation Z are not initiator of changes, but will support them when it comes to change orientation. Self regularization in general is less punctual, not predictable and les dutiful. In the scale of object focus they are more person oriented, value harmonious relationships and are more interested in the human than the factual side of the problem.

2.2. Occupational interest profile of generation z vs. X and y

In table four are presented six categories that are helping to categories the occupational interest profile of the generations. In the scale of 0 to 10, the participants are scoring their agreement with the presented categories. Based on the results of the study the following conclusions can be outlined: Generation Z is highly interested in creative working style, detailed information and working for organizations that value innovators. They have moderate interest in dealing with intellectual activities and being in subordinate functions. End at the end they do not have interest in traditional organizations, keeping a global view and being on superior position.

0-10 range	Position		Work conditions		Activity		Working styles		Information processing		Value Orientation	
Generation	Superior	Subordinate	Flexible	Regulated	Intellectual	Physical	Creative	Utilization	Global	Detail	Innovative	Conservative
Gen X	5.75	5.01	5.56	2.97	7.18	2.43	8.06	4.49	5.47	6.01	9.42	2.81
Gen Y	6.00	4.29	5.51	2.39	6.35	1.85	8.31	3.59	4.50	5.52	9.05	1,55
Gen Z	2.59	4.01	3.05	3.26	4.06	3.03	6.29	2.68	1.73	6.31	7.37	1.01

Table 4: Gen X,Y and Z occupational interest profile (Hill International study, 2016)

3. WHAT GENERATION Z WANTS COMPARED TO X AND Y

Generation Z is interested in less superior positions. Companies with predominant young employees are sharing decreasing trend of interest into the development programs in the organizations that are offering career path. Z Gen tend to be somewhat ignorant to the global point of view. Interesting fact is that use in their speech words like globally and general, but this does not necessarily mean that they are focusing on global point of view with in business environment. They consider it is prerequisite for slow motion in the organization. Post-Millennials are not as ready as the other two generations for flexible working conditions, on the opposite they expect employers to demonstrate flexibility. While the representatives of Generation Y are the ones with highest desire for creativity among the three generations in scope of this study, again iGen is the least interested in creating things. Again driven by the developing technologies, which are providing fast access to everything needed, getting used to

that Generation Z, in its majority is missing the desire for intellectual activity. For all three generations in general the desire for physical activity is low, this is the only category where Generation Z shows more interest in manual task and working with machines, whereas the one with least desire is Generation Y. Among the eight reviewed categories, innovative value orientation is with the highest score for Generation Z, nevertheless it is again behind the millennials and their predecessors.

Category	Superior position	Global information processing	Flexible working conditions	Intellectual activity	Creative working style	Utilization working style	Inovative value orientation	Physical activity
Gen X	2.59	1.73	3.05	4.06	6.29	2.68	7.35	3.03
Gen Y	6.00	4.50	5.51	6.35	8.31	3.59	9.05	1.85
Gen Z	5.75	5.47	5.56	7.18	8.06	4.49	9.42	2.43

Table 5: Gen X,Y and Z working environment (Hill International study, 2016)

Taking into consideration the outcome of the study could be outlined several recommendations to approach the Z Generation. In order to attract them, job profile should contain less classical office job and more technical activity in the working process. They are used to hold in their hands smart devices. The working environment and office space should adjust to these expectations. The induction trainings should contain short and clear instructions, info graphics and pictures, virtual trainings, tours; that are utilizing the smart technologies and gamification in training process. In terms of task distribution, they would expect small and practical tasks and clear guidelines. In order to engage them the management should assign them for participation in projects with purpose and a cause. Gamification utilization for performance management is also having engagement impact. To motivate them is needed a lot of patience and support, since they are very impatient by nature. Constructive and regular feedback, recognition and appreciation, as much as possible “like-s” per day will make them motivated and engaged. Gen Z tends to be uncomfortable with rigid corporate structures and turned off by information silos. They expect rapid progression, a varied and interesting career and constant feedback. In other words, the management style that is expected by Generation Z is markedly different from that has been applied in the past, a style that meets their expectations. The companies leik Google and Apple that have already been the most successful in attracting talented young employees are naturally innovative employers that are never restricted by »how things used to be done«. These companies are not specially targeting employees from Y and Z generation, but their culture, management style and approach to recruitment and retention naturally appeal to theses generations.

4.WHAT THE EMPLOYERS CAN DO

The demographic challenge means that business need to deal with the problem in front of the, to ensure they understand the new generations and acting to attract and inspire the best of them. The Z Generation is entirely different to previous generations and this is requiring the HR managers and business leaders to work together in order to understand this generation. It is particularly important to understand and address generational differences and tensions. The companies should use metrics and participate in benchmarking studies in order to understand what the different generations want. As well to outline how generation Z desires are distinguishing them from the older generations. The management should ensure that engagement results can be broken down by age group and consider usage of predictive analysis to highlight potential retention issues. They should look ahead for potential talent pipeline issues and make sure that recruitment strategy is in place to support the talent acquisitions.

HR managers should embed policies that are setting the right expectations in the beginning of the contractual agreement. It is important for the employers to explain what they are offering to the potential employees and but to explain what is expected in return. Creativity is need in reward and recognition strategies. It is past the time for cash bonuses. The employees from Z Generation perceive new benefit systems positively. There is also significant gap between perception and reality when it comes to the promises made by the employers on diversity and work-life balance. If employers want to attract the Z generation talents this has to be addressed through the messages they are sending out and test them against the of employee experience.
Managers need to really understand the professional and personal goals of this generation. They should rotate assignments more frequently to give them the sense that they are moving toward something and gaining variety of experiences. The business should ensure and incorporate in HR systems feedback policies that are focused on regular feedback. Generation Z wants and values frequent feedback. Unlike the past where people received their annual appraisals, generation Z representatives want to hear real time feedback about their performance, while highlights on contributions or improvements on key competencies are observed. Gen Tech want freedom. They want flexibility and work well with clear instructions and concrete targets. If the business is allowing the freedom having a flexible work schedule and work place, Generation Z is productive experiencing the freedom to decide if they will work from home or in a coffee shop. The most important is that the deadlines for task completions are met, not if the the employee checked in at 9.00 am every morning during the whole month. The learning and development managers should implement relative development programs, which are attracting the interest of Z Generation population. Mentoring programs, assignments outside of their day job, which are allowing them to connect, collaborate and build their networks, and most of all to be innovative. The HR policies, which are adopted in the company, should allow faster advancement in the organization. Historically career advancement was built upon seniority and length of service. Generation Z does not value this approach. They value results over tenure and are getting frustrated with the amount of time that it takes to work up the career ladder. They want career advancement much faster than the old generations are accustomed to. Adding more levels, grades or 'badges", could be enough to meet their expectations to rise up the ranks quickly. Finally yet importantly, business organization management should be clear on expecting the Generation Z employees to leave the company more than the older generations. HR managers should build in their HR strategies plans for replacement of the Z Gen employees. Since they are more likely to make compromises with finding the first job, this inevitably leads to higher attrition rate among this population in the organizations. Generation Z is talented and dynamic generation. Best of the Z Gen representatives are hard to find and difficult to keep in the organization. The finest of them are already in high demand and teh employeers that meet their expectations will be able to take their pick of this generation's talent. Post-Milenials may have made some compromises during the downturn but their ambition and sense of self-worth has not deminished. This generation is on the way to form the majority of teh workforce and they will look for employers who are truly acting acting on their promise, superficial changes that are intending to conect with young talents will not work.

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IMPACT OF FINANCIAL DATA QUALITY ON MODELS USED TO DESCRIBE TRANSITORY EARNINGS

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ABSTRACT

Business financial data are typically acquired from accounting that is characterized by accounting policies and methods. High-quality financial data enables to measure business performance and financial position and provide relevant information about assets, resources, costs, income and profit or loss on a true and fair view basis. The quality of financial data also depends on the conformity with reality and laws. Financial data should be a valuable information system and could be a valuable source of data for further analysis. This is mainly because of its accessibility, understandability and clarity, persuasiveness and a high truth value. Abnormal earnings are mostly transitory. Numerous models which have been employed to describe transitory earnings are especially autoregressive models and partial adjustment models. Autoregressive model is a representation of a type of random process and it specifies that the output variable depends linearly on its own previous values. The partial adjustment model has been used as a description of optimal behavior in the face of adjustment costs. The model requires a specification of how expectations are formed. The importance of expectations about transitory earnings is mainly important for asset pricing. Large part of national wealth concentrated in financial markets, income valuation has important role in formation of share prices, and income expectations also influence house prices and are used in macroeconomic models. This article is primarily concerned with impact of financial data quality into these models. Working with financial information required timely replenishment. Part of management professionalism and competence thus becomes the ability to quickly and efficiently acquire financial data, information and knowledge.

Keywords: *Autoregressive Models, Data Quality, Earnings, Mean Reversion*

1. INTRODUCTION

Nenadál, Noskievicová, Petříková, Plura and Tosenovsky (2002) like Easton and Jarrell (1998) have the opinion that if the quality control is carried out effectively the company can have considerable results especially from the financial point of view. Enterprises that have successfully established management systems achieve higher performance and better financial results. Base on the quality of financial information coming from accounting, it is possible to measure business performance, financial position, calculate the costs and revenues, incomes and expenses and profit or loss to manage and make decisions. The use of quality data is also reflected in estimates of transitory earnings. But what does the transitory earnings mean? In practice there are distinguished between permanent earnings and transitory earnings. Permanent earnings are earnings that are expected to be repeated in the future. Transitory earnings are earnings that are not expected to be repeated in the future. Quality of earnings refers to the usefulness of current earnings for predicting future earnings. Quality of earnings is on high level if there is a close relationship between current and future earnings.

And on the other hand quality of earnings is low if the relationship between current and future earnings is distant. In other words, earnings that are constant and will continue in the future are permanent and earnings that are not stable and are indefinite to continue in the future are transitory. Managers can change level of quality when they manage earnings through their accounting policies, estimates, and accruals. Literatures dealing with research of finance and financial markets deals with transitory earnings. They tell us that:

a) the extraordinary earnings are transitory and the rate of earnings mean reversion is significant and positive,
b) share prices deflated by earnings (P/E - share price/earnings per share) are also mean-reverting and negatively correlated to profitability.

These findings however do not provide enough information for transitory earnings forecasting. Why? Profitability as a financial ratio is stationary (Ioannidis, Peel, & Peel, 2003). Just its purely random behavior can be measured as mean reversion. Therefore, the autoregressive (AR) and partial adjustment (PA) models used in the transitory earnings research show that there are earnings mean reversion (MR) towards target. However the target is, with respect to methods used in overwhelming majority of research in this area, company-specific and unknown. Unfortunately, such mean reversion rate estimates are hardly usable for the practice.

2. FINANCIAL DATA QUALITY

It should be said that quality financial data reduce the risk for potential investors, for the management and their decisions and also increase the ability of companies to raise finance at a reasonable cost of capital. When we use quality financial data to the models described transitory earnings (autoregressive models, partial adjustment models or other models) then the results are on a much higher quality level and have greater explanatory power. It is important to realise that accounting data processing can be connected with some difficulties and mistakes in their transfer to financial statements that is subsequently used for financial analysis and in most of models, including transitory earnings models and meaurement methods as well. During charging and compilation of financial statements, we can meet purposeful or unintentional manipulation, which reduces the quality of used data. The main areas that could influence the quality are falsification, accounting methodology and information systems. The quality of information is described by Puican, Avram & Dutescu (2011). They said the information has to be characterized by:

- Speed – is given by time that is necessary for information to reach from the issuer to the receiver;
- Frequency – is given by the number of information of the same type in a time unit determining information rate;
- Accessibility – depends on the communication means, communication between individual members of each department, on the personnel training, of storage means, etc.;
- Actuality – (or timeliness) interprets the information capacity to present recent events;
- Intelligibility – it is a measure of how information users are able to understand their meaning;
- Reliability – represents the ability of the information to provide a true and fair view of the situation;
- Pertinence – indicates the quality of information to give answers in a specific situation;
- Age – it is expressed by the time between acquiring the information until the enforcement of decisions taken on their basis (Puican, Avram & Dutescu, 2011).

Vlčková (2015) compiled three groups of criteria (first group contain errors and fraud, second group contain accounting methodology and third group contain influence to information system

in a company) that affect the quality of accounting data and within these criteria, the sub-criteria have been established. The first group is composed of four criteria:

- accounting fraud by management, unethical behavior,
- accounting fraud by employees, unethical behavior,
- creative accounting, and
- accounting errors arising out ignorance, human accounts error.

The second group is composed of five criteria:

- methods of depreciation,
- methods of valuation,
- methods of accounting organization, processing,
- internal directive, and
- internal control.

The third group is composed of three criteria:

- lack of information, poor internal communication,
- legislation - too wide or narrow, confusion, frequent changes, and
- requirements for managers to information system.

Estimates of calculated transitory earnings models and measurement methods are affected primarily by the creative accounting. The creative accounting exists in connection with charging. It is a useful instrument for managers to represents the image of enterprise and select information so that the data seems better (Marilena, & Corina, 2012). The definition applied in the European Union views creative accounting as using flexibility within the regulatory system without frauds (Jones, 2011). Gowthorpe & Amat (2005) set two principal categories of manipulate behaviour macro and micro manipulation. Macro manipulation is described as lobbying of regulators to produce rules what are advantageous to the interests of the processors. Micro manipulation is defined as engagement in the entity level manipulation in order to present a biased view of economic reality.

3. MODELS USED TO DESCRIBE TRANSITORY EARNINGS

Models which have been employed to describe transitory earnings are:

- autoregressive (AR) models,
- partial adjustment (PA) models,
- other models.

In this paper, we focused only on autoregressive models which are (was) most used. Prerequisite for the using of these models and to ensure results of the highest predictive information capability is of course using quality and undistorted data as variables in the models. Beaver's (1970) analyse earnings time series and statistically examine MR models as one of the first. He shows how autocorrelation function value is influenced by data generating processes - white noise, random walk and moving average. The relations analysed by Beaver (1970) can be due to equality between standard deviations $\sigma(x_t) = \sigma(x_{t-1})$ formulated as:

$$x_t - x_{t-1} = \beta(x_{t-1} - x_{t-2}) + \varepsilon_t \ , \tag{1}$$

$$x_t = \beta x_{t-1} + \varepsilon_t \ , \tag{2}$$

where we looks for β and where:

$x_{j,t}$ are earnings,
t is time period order number,
$\varepsilon_{j,t}$ r is an error term.

Then he examines autocorrelation of earnings, returns and prices and their first differences, and finds that earnings per share to net worth per share, earnings yield and undeflated earnings show the properties of moving average, contrary to total return on share, which he finds as random. Geroski and Jacquemin (1986) as well as Goddard and Wilson (1996) apply autoregressive models on abnormal profitability to European countries. The profitability are estimated as differences from economy-wide average profitability. They find persistence about 40 – 50 %. Geroski and Jacquemin (1986) concentrate on comparison between United Kingdom, France and Germany and industries while Goddard and Wilson (1996) provide interval estimates of persistence rates. They say that the point estimates can be intriguing because the estimates are not concentrated around one number, but rather dispersed. Freeman et al. (1982) test AR of the return on equity, but they use logit framework in order to determine predictive power of profitability, which is more robust to the statistical distribution of residuals assuming that good quality data is used. They find that the large deviations from average profitability perform better results than simple trend model. In other words we cannot say much about the future direction of profits slightly below or above normal, but we are quite sure about mean reversion in the extreme cases assuming the use of data compiled on the basis of a true and fair view.
Goddard et al. (2005) use model based on autoregression of return on assets and estimates wide range of earnings persistence rates (the results of equation 1 are mostly between 0.2 and 0.5) for different industries. Frankel and Litov (2009) and Dichev and Tang (2009), who derived from equation 2 equation 3 and rearranged it by the knowledge of $\sigma(x_t) = \sigma(x_{t-1})$ into

$$\sigma^2(x_t) = \beta^2\sigma^2(x_{t-1}) + \sigma^2(\varepsilon_t), \tag{3}$$

$$\beta = \sqrt{1 - \sigma^2(x_t)/\sigma^2(\varepsilon_t)}\,. \tag{4}$$

Equation (4) shows that mean reversion is the faster the higher is share of errors in the time series variance. Estimation of autocorrelation function (equation 1) of earnings or ROE, ROA etc. puts company-specific randomness in one number. If the measured variable is not stationary, then autocorrelation function estimated over long term cannot properly measure earnings. That is the sacrifice for easy definition of autocorrelation function in cases of basic types of moving average and autoregressive processes. Those equations unfortunately assume the mean reversion target as company-specific, thus it is unusable for forecasts for other companies. For this reason, in the next part of the article, the quality of the data is assessed in two basic business segments (production company vs. services providing companies) and quantified the difference that may arise due to poor data quality. Namely, we could obtain very different profitability curves under insignificantly different parameters.

4. METHODOLOGY

As another step, there is set a hypothesis if there is statistically significant difference between the quality of the data of the production companies and the quality of the data of the services providing companies. The method used for evaluation of quality is DQAD (determination of quality of accounting data). This method is composed based to the criteria which have the biggest negative impact to the quality of data and to the management (Vlčková, 2015).

These criteria have already been described above. Based on these criteria was, by using the methods AHP (Analytic Hierarchy Process) and Multiple Linear Regression, composed this model to determining quality of accounting data (Vlčková, 2015):

$$DQAD = 1{,}746 + 1{,}326 * ((\text{Adjustments} + \text{Reserves})/\text{Total Asset}) + 0{,}002 * (\text{Cash Flow}/\text{EBIT}) - 0{,}236 * (\text{Revenue}/\text{Total Assets}) - 0{,}378 * (\text{Cash Flow}/\text{Liabilities}) + 0{,}075 * (\text{Interests}/\text{Cash Flow}) \quad (5)$$

As a statistical method to verify if there is statistically significant difference between the quality of the data of the production companies and the quality of the data of the services providing companies is used Kolmogorov–Smirnov test. This test determines if two datasets differ significantly. The Kolmogorov–Smirnov test (K-S test) has the advantage of making no assumption about the distribution of data. The K-S test is based on the empirical distribution function (ECDF). Given N ordered data points Y_1, Y_2, ..., Y_N, the ECDF is defined as:

$$E_N = \frac{n(i)}{N}, \quad (6)$$

where:

n(i) is the number of points less than Y_i,
Y_i are ordered from smallest to largest value.

This is a step function that increases by *1/N* at the value of each ordered data point (Hendl, 2012).

5. RESULTS AND DISCUSSION

The model DQAD was used for 5 910 companies; 3 323 services providing companies (SC) and 2 587 production companies (PC). There were companies from Czech Republic, with number of employees from 10. Data are obtained from the Albertina Gold Edition database for the period 2016. The higher the value of accounting data quality is the worst quality of data in the company is. Firstly, the quality of data was detected and range for data quality was compiled. The results are in the following table.

Table 1: Detection of data quality in production and services companies (own research)

Range QAD	Production company - number	Production company - %	Services company - number	Services company - %
Very good quality (to 0.8)	595	23,00%	569	17,12%
Good quality (0.81 - 1.6)	1813	70,08%	2517	75,74%
Average quality (1.61 - 2.4)	171	6,61%	221	6,65%
Bad quality (2.41 - 3.2)	3	0,12%	9	0,27%
Very bad quality (3.21 and more)	5	0,19%	7	0,21%
Total	**2587**	**100%**	**3323**	**100%**

In the table 1, it is seen that there are more production companies in the range "very good quality" than services companies (in %). On the contrary, there is more services companies in the range "good quality" than production companies (in %).

For the results verification there was used the Kolmogorov–Smirnov test. K-S test is a nonparametric test of the equality of continuous, one-dimensional probability distributions that is used to compare two samples. The Kolmogorov–Smirnov statistic quantifies a distance between the empirical distribution functions of two samples. The zero distribution of this statistic is calculated under the zero hypothesis that the samples are drawn from the same distribution. The results and differences are in the next table.

Table 2: Kolmogorov-Smirnov test (own research)

Maximum negative difference	Maximum positive difference	P-value	Average SC	Average PC	Standard deviation SC	Standard deviation PC	Number SC	Number PC
-0,0037	0,0812	p < .001	1,1543	1,0672	0,4855	0,5267	3323	2587

We can see that p-value is less then 0,001 at the significance level $\alpha = 0,05$. This test at the significance level $\alpha = 0,05$ shows that there are statistically significant differences in quality of the production companies and services providing companies. And there are some questions. Is it possible to use some models to describe transitory earnings with high predictive ability? And is it possible to use the same model for the production companies and for the services providing companies (or other differences)? Some authors use ROE or ROA in the autocorrelation models. The average ROE in the analyzed companies was 17,13 %, the average ROA was 2,36 % and the average EBIT was 7 692 th. CZK. Average quality of the data was 1,067 at production companies and 1,154 at services provided companies. The difference in the quality is 8,15 %. It means that due to different quality of the data in the analyzed companies, the average ROE should be in the range from 16,43 % to 17,84 %, average ROA should be in the range from 2,26 % to 2,46 % and average EBIT should be in the range from 7 379 th. CZK to 8 005 th. CZK. It is obvious that quality of the data has impact to transitory earnings models and it is necessary to keep these differences in mind

6. CONSLUSION

High-quality data enables to measure business performance and financial position and they are used for predictions. In this article, there is analysed impact of data quality to models used for description and prediction transitory earnings with the main area of interest to autoregressive models. Autoregressive model specifies that the output variable depends linearly on its own previous values. This models assume the mean reversion target as company-specific, thus it is unusable for forecasts for different companies. The data of financial accounting is often poor because of several reasons which are mainly creative accounting, accounting frauds (both intentional and unintentional), valuation in accounting and so on. Due to own research it was find that the data quality is different in each company. It was analysed that there are statistically significant differences in the quality of the production companies and services providing companies at the significance level $\alpha = 0,05$. Difference between both groups of companies in the data quality was 8,15 %. It is obvious that when setting variables in the models used to measure transitory earnings, it is necessary to ensure that the data is with perfect quality so the results of transitory earnings are at the highest possible level.

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AGROKOR – A CASE OF CONTROLLED COLLAPSE*

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ABSTRACT

At the beginning of 2017, Agrokor, the largest privately owned Croatian corporation, was caught in a crisis due to the inability to meet its financial obligations. At the time of the crisis, Agrokor encompassed more than 50 companies in retail, food and agriculture, agricultural commodities trading, IT services and energy production sectors and employed 60,000 workers in 6 countries, of which 40,000 in Croatia. Agrokor's business audit, conducted on the order of a special administrator named by Croatian Government, and published in October 2017, showed that the total debt to banks and suppliers at the end of 2016 amounted to 56.28bn. kuna, which is HRK 14.5bn. more than the company's capital. The case of Agrokor is significant not only because of its importance for the Croatian economy, but also because it represents the archetype of the Croatian model of capitalism nominally based on the free market and free competition, but in fact being a sort of crony capitalism that evolved during the 1990's from the basis of Yugoslavia's nominal self-managing socialism and the so called negotiated/consensual economy that in the real life soon turned into its crony variety. This paper aims to explore how it was possible, without any previous restrictions and reactions, for Agrokor to reach such proportions of concentration on the national market, from primary production to retail distribution of food, but also in a number of related and completely unrelated industries, that its crisis represents a serious threat to the stability of the national economy (mainly based on the same business model), how the controlled collapse of this Agrokor is facilitated by the government, and which institutional and technical issues are opened in this process.

Keywords: *Agrokor, crony capitalism, political economy, privatization, transition*

1. INTRODUCTION

In the former Socialist Federative Republic of Yugoslavia (SFRY), in contrast to other countries of socialist social order with dominant state ownership, a special form of so-called social ownership[1]prevailed. It was the foundation of ex-Yugoslav system of socialist self-management[2], according to which workers organized through working councils, could formally influence the decisions choice of management and make major strategic decisions, for example merging or separating from a larger collective, distribution of profits, etc. All relationships between economic and other social subjects were managed in accordance with the ideal of the so called negotiated/consensual economy.[3] In practice, the most important decisions were made

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[1] „Social ownership, the form of collective property in the socialist legal order, where it has the role of state ownership as a fundamental institution of socio-economic planning. The objects of social property (social assets) should serve as a working class' inputs for production and to meet other needs. Social ownership has been arranged so that the social property wasn't privately owned, not even by a state, but specific subjects could acquire and have some rights with limited content. Those were the socially-owned entities: organizations of associate work, socio-political communities and others, who could have the right of management, right of disposal and use. Social ownership gradually disappeared after 1990 by converting to state ownership or private property of individuals.“ (Hrvatska enciklopedija)

[2] For more details about the socialist self management in Yugoslavia see: Kardelj (1976).

[3] "In July 1977, Edvard Kardelj held a debate titled "The Rule of Development of the Political System of Socialist Self-Management" at the session of the Presidium of CK of the Communist Party of Yugoslavia, after

by the ruling Communist Party and its loyal, politically suitable management. Numerous financial institutions and markets that exist and operate in the capitalist world were non-existent and those that did exist, such as banks, had a completely different purpose. Banks were one of the basic instruments of state control and intervention in economic relations, acting as a financial service of so called "joined labour", transferring money to selected business entities without the imperative to make profits, operating within a "soft budget constraint", often with negative real interest rates and without an advanced risk management system. Although private ownership of enterprises was not prohibited, legal regulations and operating conditions (tax treatment, inspection supervision, and maximum permitted number of employees) have considerably limited the size and performance of private companies, encouraging the development of corruption and discouraging the vast majority of private entrepreneurs to business expansion. Almost the entire population of working-age population was employed in socially-owned enterprises, with active workers' unions which had almost 100% membership, under the extraordinary influence of the ruling Communist Party and as an integral part of the socio-political system. Therefore, the employment of new workers and the firing of the existing ones (which occurred exceptionally rarely, except in the case of the so-called technological surplus of workers) were in the hands of the companies themselves, i.e. workers' councils and their disciplinary commissions. Rather than maximizing profits, companies were focused on executing plans and maximizing their employment, which was reflected in a relatively high level of employment and social benefits: free education, free health care, available social housing, and rather generous retirement. In such socio-political circumstances these were the most desirable goals of the economic policy from the macro level of Federation to the micro level of the each non private company. Company's management was therefore motivated to satisfy the workers, as well as political structures, avoiding any politically incorrect or risky business behaviour, by shifting key decisions to a higher level of decision-making. The management had to cope with the expectations of socio-political organizations which were concerned with maintaining a low level of unemployment and high levels of appropriations for the financing of their activities, while the workers expected solid personal income, and in many cases resolving housing issues at the expense of the company. The size of an income of the management (as well as of other relevant qualified and skilled workers) were limited and quite discouraging, corruption flourished, as well as various forms of unethical behaviour of the management at the expense of the company. Undoubtedly, the management was a motivated to maximize profits in these non-market conditions of doing business; however that was often achieved through the use of various business, personal and political ties and influences, in order to achieve a privileged position over competition, thereby securing political protection, which resulted in development of crony socialism. The main concern of the political elite, which was, regardless of their incompetence, the main creator of the most important, strategic decisions, was to preserve the image of a successful and desirable social and economic model – "socialism with the human face". That was achieved through the avoidance of social and political tensions, and by various mechanisms of redistribution which rescued and enabled survival of companies that employed and provided material existence to a large number of workers and their families, regardless of their success. Few successful companies, however, could retain some of their profits and provide their workers with evidence that high quality and productive work is worthwhile. Some of the more entrepreneurial and politically well-connected management of successful businesses have invested more in the development of new products, technologies and marketing, thus developing competitiveness, creating new, recognizable brands and conquering markets at home and abroad.

which the term "negotiating economy" came into the political dictionary. According to its principles firms, banks and state bodies should harmonize their interests by respecting the needs and the position of others." (Fižulić, 2016).

2. THE FOUNDATION OF AGROKOR

In this period, among many other large companies in various branches of the economy, in 1963, as a result of political decision, Agrokombinat[4] was founded and Ante Todorić, the father of future largest and the most successful Croatian entrepreneur Ivica Todoric was appointed as its general director. He has quickly proved his managerial abilities by creating huge agricultural company from previously anonymous money loosing venture with a lot of potential that soon become one of the twenty biggest and most successful companies in the former SFRY. By the nature of its position, he strengthened existing and created new connections in the highest political and economic circles. Due to the change in political climate, and because of his lack of obedience to the wishes of the ruling circles of the Communist Party, in the 1972, Ante Todorić was convicted of politic and economic crimes. In 1974, he was found guilty for economic crimes and sentenced to 14 years of strict imprisonment, the seizure of his entire property and the ban on performing any managerial and administrative duties. In 1975, the Supreme Court reduced it to six years, of which he served four years and three months. During that time, his son founded present day Agrokor, as a family business with 5 employees that produced and sold flowers and flower seeds, and later expanded as a leading importer of flowers as well as other commodities like wheat, oilseeds etc., thus consolidating within the same business operation manufacture, wholesale and retail. That would stay a trademark of his way of doing business till the end.

3. THE CRISIS OF SOCIALIST SELFGOVERNING MODEL

During the 1980s, important political changes occurred, caused by the death of first and life-long President of SFRY Josip Broz Tito, and the economic shocks caused by the collapse of the former model of uncontrolled borrowing from abroad, which finally came under the patronage of the IMF, as well as the introduction of the so-called hard budget constraint. SFRY faced with high inflation (that reached 2000% in 1989), as well as a high deficit of the foreign trade balance. The state tried, through the banking system, to help the economy by offering cheap loans, in fact subsidizing it because of inflation, with negative real interest rate on loans. At the same time there was a growing demand for foreign currencies needed for the import of raw materials and for servicing the growing foreign debt, so exporters were additionally stimulated to increase exports and sell foreign currency on domestic market. As a result, distortion of domestic and foreign prices appeared, for the same goods that are sold abroad cheaper, differences have been compensated by higher prices on the domestic market where they were protected from the competition (e.g. Zavodi Crvena Zastava's "job of the century" Yugo car exports to the US started in 1985). "This was crucial for the direction of the transformation. Large producers within the private sector and directors of social enterprises were increasingly disobeying the rule of law; they did not abide by the law, and depended on the informal economy and the networks upon which it was based. These were the business systems of value making the private and social sectors ready for the opportunities that the transformation opened up. In such an environment, Ivica Todorić gained entrepreneurial experience and shaped his approach to business politics." (Bićanić, 2017, p. 44).

4. TRANSITION AND PRIVATIZATION IN CROATIA

The termination of the former Yugoslav federation and a later international recognition of the Republic of Croatia coincides with its entry into the process of transition from the self-managing socialist mode into free market economy. By acquiring independence, the historical opportunity for autonomous creation of economic policy has been achieved.

[4] For more details see Paparella (2016) and *Povijest Agrokora* (2017).

Due to objective circumstances (imposed defence war and war destruction) and subjective weaknesses (lack of development strategy, transition, transformation and privatization problems, macroeconomic instability, etc.) to this date to it has not achieved the desired and expected results. The state of the economy in Croatia in 1991 was largely determined by the national defence requirements, the collapse of the single SFRY market, the crisis and the loss of the market of its important foreign partners - the transition countries of Europe, and the struggle against inflation, while macroeconomic objectives were largely subordinated to the realization of political ones. The fact is that Croatian economy during transition and in post-transitional period (the average annual growth rate of the 'capitalist period', 1990-1995 was 1.8%) failed to reach the growth rates achieved in the pre-transitional period (average annual growth rate of 'socialist period' 1952-1989 was 4.3%). (Bićanić, Deskar Škrbić, Zrnc 2016). Privatization in Croatia started in 1989 while Croatia was still a member of the SFRY. The new Law on companies eliminated numerous status and business restrictions on private entrepreneurs, by equalizing legal status of private and social ownership. At that time, a small number of social enterprises were privatized, according to the model of employee shareholding, involving almost all former and current employees. After the Croatian separation from the Yugoslav federation, privatization continued in a completely different direction. Firstly, by comprehensively transforming social ownership into the state ownership (with the abolition of the original Yugoslav workers' self-management model) after which now state owned firms were sold-out seemingly without any strategic plan during the early 1990's, partly due to war circumstances and partly because it served the private interest of certain "investors", under the pretext that the private ownership of means of production (in line with what exists in developed capitalist countries) is a prerequisite for maximizing economic efficiency, and any imperfections in allocation and management will be corrected by a laissez-faire market mechanism without the need for additional state intervention, except in the sphere of initiating the privatization itself, as the first stage of the original accumulation of capital. Furthermore, in such sales model[5] of the state owned capital, it has become desirable that it results in gaining a dominant owner-manager of a few large business conglomerates, encompassing a large number of different smaller companies. Usually, such a holding of various companies was too big and complex one for managing by their principal shareholder without such prior business experience. Nevertheless, such new entrepreneurs usually had a good relationship with the ruling political party and banks that enabled and financed this business model to its most favourite clients thus, creating the new dominant class without their own previously earned capital, just like during the socialism, and preserving the old inefficient patterns of corporate governance during that process. Coupled with extensive employment in the public sector, according to new political suitability and loyalty to the new regime, regardless of expertise, that model resulted in an ill-conceived symbiosis of the public and private sector under the sponsorship of interest groups whose efficiency is also visible in the lagging behind of the Croatian economy. Within the context of new legislative framework, in the 1989, Ivica Todorić registered his private business enterprise under the name of Agrokor – enterprise for the production, distribution and trade in flowers, cereals and oilseeds.

[5] „The decision on sales, in an environment where there is no functional capital market, is utterly unfair, since it is not possible to determine the opportunity cost of that which is being sold, or bought. The value assessment system was very vague and unfair, since it was prone to adjustments in order to achieve the desired result. Other than that, it was non-transparent because different assessment criteria were applied. Finally, it was not a level playing field, since access to the privatisation process was limited, and the outcome was previously agreed upon and biased in favour of the chosen ones. Implementing the procedure in such a way favoured those linked with the authorities, and decisions were made by the state institutions (the institutional framework changed over time, but its content did not) with a great deal of decision-making at their own discretion. Everything was set for the predominance of ad hoc decisionmaking in which discretion in assessment prevailed over procedure and there was a lot of room for corruption and suspicious procedures." (Bićanić, 2017, p. 46).

Soon Agrokor becomes the owner of many other companies which will become the foundation of his business model[6]; Jamnica in 1992, Zvijezda in 1993, Ledo, Silos Moslavina, Bobis and Solana Pag and the retail chain Unikonzum, (later Konzum) in 1994 that lead to its domination not only in retail sector, but also in valuable commercial real estate all over Croatia and together with Tisak was a cash making facility for his later acquisitions. The sources of funding for those first acquisitions still remains are still not transparent. During the next phase of expansion Agrolaguna and Sloboda Osijek were taken over in 2004., in 2005 Belje and PIK Vrbovec (which together with previously acquired PIK Vinkovci and VUPIK gave Agrokor over 30000 hectares, about 2.5% of all farmland in Croatia, and 1/3 of all food production facilities) and in 2007 Tisak. Expansion in the region followed with the purchase of Sarajevski kiseljak in Bosnia and Herzegovina in 2000; in 2004 Agrokor acquired the mineral water filling plant Fonyódi ásványvíz and the ice-cream factory Baldauf in Hungary and in Serbia Frikom in 2003, Dijamant and Idea in 2005, and Kikindski mlin in 2006. The largest and probably fatal acquisition happen in 2014 when Agrokor for over half billion EUR took over already over-indebted Mercator retail chain with business facilities in Bosnia and Herzegovina, Croatia, Montenegro, Serbia and Slovenia. This wave of expansion was mainly financed by the loans from major international financial institutions like EBRD and World Bank (IFC), as well as by issuing corporate bonds in cooperation with ANB-AMRO, Bank Austria, BNP Paribas, PBZ, Raiffeisen Zentalbank, SG Splitka banka and Unicredit, although with rather high interest rates around 10%. However, the ownership and complete control of all aspects of doing business remained in the hands of its founder and boss Ivica Todorić. "This primarily influenced the decision-making process; one vote was decisive, without checks and balances, and without mandatory presentations of second opinions. Efficiency of negotiation in such companies depends on one person and all activities are centralized. These are not the terms in which a modern company with various business components in a complex business environment can be led. A company which does not outgrow such a form of management eventually fails. However, while such a company is unable to grow into a modern conglomerate, it is ideal for crony capitalism. Political circles negotiate with one person who has a free mandate. … From the data published following its collapse, it can be seen that Agrokor continued its operations in line with the previously acquired manner, which was only marginally adjusted to new conditions. Agrokor remained the "boss company" in terms of its manner of doing business, which corresponds to crony capitalism. In this regard, several business practices taken from an earlier phase are emphasized. The most important ones are: tunneling, siphoning, report counterfeiting and shadow banking. All four are forms of financial dishonesty and fraud. However, they do vary. Business activities are still characterized by expressed clientelism and law disobedience when appropriate (tax evasion is especially emphasized)." (Bićanić, 2017, p. 48-49) Clientelism is clearly seen, at least as the possible conflict of interests, through the CVs of its managers (and/or members of their immediate families) who were also high state officials before, and some of them also/or after working for Agrokor[7].

5. THE COLLAPSE OF AGROKOR

After financial crisis and recession in Croatia (2008 – 2014) that reduced its revenues and more intense competition in Croatian retail sector from large European chains with more favorable financial sources, situation in debt ridden Agrokor looked ominous, especially in the eyes of much needed but even more so reluctant future investors and present creditors. Ivica Todorić

[6] For more details see Paparella (2016) and *Povijest Agrokora* (2017)

[7] "It is difficult to find an example in the world that a CNB governor, finance minister, minister of public administration, chief of police, deputy finance minister, deputy minister of economy, chief of one of the unions, director of public television, husband of the boss of the Agency for the protection of competition, the wife of the deputy Prime Minister, etc. were employed by the same company." (Ivanković, 2017).

then turned towards east, namely to Russian VTB and Sberbank that soon jumped in and acquired over half of its debt (1,4 bn. EUR). Soon Agrokor's problems became publicly known: „in January 2017, rating agency Moody downgraded the company's rating by one level, to B3 from B2. In its explanation, Moody stated that the company's revenues were down by 2.2 per cent in the first nine months of 2016 whereas financial expenses increased by 3.9 per cent. More importantly, Moody included the PIK bonds issued by Adria Group in the overall debt due to the fact that the company agreed on debt refinancing with Russian banks in September and November 2016 to the amount of 840 million EUR. These loans would have to be repaid before the maturity date provided that the company was unable to refinance the PIKs 90 days prior to their maturity (21 May 2018). This would have a significant negative effect on the company's debt to EBITDA ratio. According to Moody's forecast, it may reach 6.8x at the end of 2016. The ratio should be below 5.5x to maintain the rating that Agrokor had enjoyed before. … In addition, debt to suppliers totaled 16.2 billion HRK. According to the rating agency, the company applied 150 payment days, significantly more than its competitors in the retail market that paid their suppliers in 60-90 days. On the other hand, if the company shortened its average payable period, it may run into problems with maintaining liquidity." (Klepo, 2017, p. 32-33). Also some creditors[8] started to question the reliability of Agrokor's financial reports, which additionally ruined its perception it the eyes of over 168 Croatian companies that it had business relations with and many of them were forced to participate in its shadow banking scheme[9], as well as general public and financial community. Under such public pressure and negative spotlight even the highest political circles in Croatia started to turn their backs to Ivica Todorić, their former generous sponsor and employer: "As the pressure grew and the company faced a liquidity crisis, eventually, Ivica Todorić turned to the government. He held secret talks with Prime Minister (PM) Andrej Plenković and his team on a potential government bailout, including a favorable loan from the state development bank (The Croatian Bank for Reconstruction and Development, CBRD). The government decided not to provide financial assistance to Agrokor and to join the whole process in the role of an arbiter only if Ivica Todorić passed on his management positions to someone else. Nonetheless, the government took measures to prepare a legal framework, modeled on the Italian Parmalat case (Parmalat was an enterprise of systemic importance for Italy) to prevent spill over to other parts of the economy." (Klepo, 2017, p. 33). Finally on April 7th, 2017 Ivica Todorić formally requested (Hrvatska danas, 2017) the application of newly created Act on the Procedure of Extraordinary Administration in Companies of Systemic Importance, the so called "Lex Agrokor"[10], that was

[8] The vice president of VTB bank Yuri Soloviev: „Agrokor's debt has not been completely shown in financial reports." Russan banker accuses Agrokor of cooking the books (Pavlic, 2017).

[9] „Since Agrokor could not take loans with banks in Croatia anymore because they had reached the maximum credit exposure, it recently started applying the so-called *shadow banking* practice. Many Croatian companies covered by Konzum's distribution chain accepted to take part in shadow banking by taking loans in banks or lending their own money. In return, Agrokor issued promissory notes. Once these companies needed cash, they factored them to factoring companies at a discount. However, these promissory notes included the terms for recourse, so, if Agrokor defaulted on payment to factoring companies, they had recourse to the company that factored them in. Many suppliers were thus in danger of not being able to settle their claims with Agrokor. Moreover, they also ran the risk of having to pay their promissory notes to the amount of some 3.5 billion HRK." (Klepo, 2017, p. 33-34).

[10] Which, in its proposed form was widely critisized by the foremost croatian insolvency law expert; „The proposed law is opposed to the basic principles of civil, commercial and modern insolvency (bankruptcy) law, and if it, as such, becomes a law it would endanger legal predictability and legal security in the Croatian legal system." The same goal could be achieved without so much legal uncertainty and challenging potential long-term disputes in the country and abroad, within the existing bankruptcy legislation in line with its compliance with EU legislation. "If it is urgent to have some rules regulating the inability to pay the obligations of affiliated companies, then it is simpler that the existing Croatian Bankruptcy Law introduces rules on co-operation, communication and coordination between the insolvency proceedings open to the assets of affiliated companies that are envisaged in Articles 56 to 77 (EU) 2015/848 of the European Parliament and of the Council of 20 May

adopted in Croatian Parliament and published in Official journal just a day before (Narodne novine 32/2017), according to which the company would be taken over by a special emergency administrator with very wide range of powers and few if any checks and balances, appointed by the government who's main task would be to negotiate a deal with creditors how to solve the crisis within 15 months period. "By early October 2017, claims against Agrokor and its six affiliates had been filed in six countries (Croatia, Serbia, Slovenia, Bosnia-Herzegovina, Montenegro and Great Britain), led by the Russian Sberbank. New loans allowed the company to stabilize its business operations and improve relations with suppliers and customers. During July and August 2017, following the decisions of the interim creditors' council, payment of old debt for 4,876 Agrokor suppliers was approved on the basis of the *roll-up* agreement. Small businesses and micro companies with revenues up to 5.2 million HRK were paid in full. Suppliers were thus paid over one billion HRK, which is equal to 40% of the so-called old debt for delivered goods." (Klepo, 2017, p. 38). Finally, Agrokor's business audit, conducted on the order of a special administrator named by Croatian Government, and published in October 2017, showed that the total debt to banks and suppliers at the end of 2016 amounted to 56.28bn. kuna, which is HRK 14.5bn. more than the company's capital (Vecernji.hr/Hina, 2017). But instead dismantling the old crony capitalist model, the controllers of collapse have retained many of its features. It remains unclear who is the author of Lex Agrokor, although there are indications that some of the authors are related to today's crisis management and by their active involvement in the making of the Law enabled themselves to have decisive influence on present day administration and the future destiny of Agrokor (Ćimić, 2018) and (Ivković Novokmet, 2018), while others as brokers and fund managers have, before the steep decline in the value of its shares, been able to trade information and even securities of members of Agrokor group that were listed on the stock exchange.(Brakus and Bajto, 2017). A special administrator was appointed by the Government without public tender, and the American vulture fund, Knighthead, who bought 49% of Agrokor's bonds for the EUR 150 million nominal value of 490 Million EUR, with his support, takes the lead in this process at the expense of those creditors who did not participate in the so-called roll-up lending model. So far the collapse of Agrokor looks controlled, but not without new challenges and opposition, especially from its founder. On October 5, 2017, extraordinary administration presented audited financial statements for nine Agrokor affiliates, done by PricewaterhouseCoopers for two previous years, according to which those audited affiliates of were worth 13.4 billion HRK less than reported and that the overall loss totaled 3.2 billion HRK. It showed that financial difficulties were present and known to the management for a certain period before the public outbreak of actual crisis, since they have done some creative accounting to hide the obvious facts and to mislead the future creditors, as stated by VTB bank officials.[11] Soon after that disclosure the former

2015 on insolvency proceedings (Articles 56 to 77). It may be stipulated that these rules will be applied immediately in the Republic of Croatia.„ For more details see: (Garašić, 2018).

[11] „Even the state institutions had undoubtedly been aware of the difficulties at Agrokor long before the beginning of 2017. The regulatory agency (HANFA) and the National Bank drew actors` attention to the unacceptable situation concerning the use of bills of exchange. The governor, trying to exculpate the Croatian National Bank from its obvious liability, declared later on that "everybody has known everything" already since 2014 (when Agrokor acquired Mercator). Furthermore, when adopting its decisions, the Government gave advantage to Agrokor in solving its financial problems and thus decided to postpone the adoption of a new legal regulation on factoring, through which it enabled further business with the bills of exchange. Now it has become known that, before the crash happened, numerous meetings were held between representatives of the Government and Agrokor. Finally, late in 2016, the Croatian Bank for Reconstruction and Development (HBOR) granted loans to Agrokor in amounts that were awarded by the Council consisting of ministers. These subsequent pieces of information show that they had been aware of the financial difficulties at Agrokor and despite that granted new financing. In the end, immediately before the collapse, according to the information given by the Government, Agrokor's owner, Ivica Todorić, had asked for help from the Government and for loans to an overall sum of about 2.3 billion HRK to solve the liquidity problem. There were several such

boss of Agrokor, now in London and fighting extradition to Croatia, addressed the general public via his blog and presented serious accusations against some government officials and their financial and legal advisers and consultants.[12]

6. CONCLUSION

The results of the two and a half decades of transition, transformation and privatization in Croatia, show a noticeable lack of development of functional institutional framework needed for normal functioning of the market economy. The transition, of course, represents and assumes a significant institutional change. However, institutional infrastructure has been developed over a long period of time and it is impossible to change it overnight. There is also a complex system of interdependencies between formal and informal as well as political, economic and cultural institutions. Furthermore, the impulse for institutional change can start from an economic or cultural sphere, be accepted by politics, or that political reforms will initiate deeper cultural and economic changes. Sometimes, as in the case of transition, these changes occur in parallel and it is difficult to distinguish the initiators from the ones that follow, especially because of the interdependence of politics and economics that are often formally and informally linked by common goals, actors and interests. The institutions determine the framework for action, and actions are taken by the organizations. Organizations (such as Agrokor) are actually interest groups that exist and operate within an institutional framework with the aim of achieving specific benefits from institutions. Agrokor has emerged and developed as an organization within a given institutional framework. It is deeply rooted in the pre-transitional stage, the time of crony self-governing socialism in which the nominal authority belonged to workers-self-managers in the firms, but important economic decisions were made outside, in the sphere of politics, which was enabled by the devolution of the idea of the self-management and negotiating economy. Thanks to the Croatian model of transition, this system has metastasized into contemporary Croatian capitalism in which there is a nominal free market economy, but in practice it operates in its crony variant, further undermining the trust and stability of the overall institutional infrastructure. The controlled collapse of Agrokor is nothing but the second (the first one was the transition from the crony workers' self-management to the crony capitalism) life, after its supposed death within its socialist framework, of the same model of political economy, that today is continuing with existence in its EU-ized form. Politics continues to control the emergence, evolution and collapse of its protégés, creating "winners" that remain winners until they lose political protection and support, after which their careers usually get a court epilogue, followed by the next set of politically chosen favorites. The termination of this continuity is only possible when there is a sufficiently strong internal or external demand - pressure for change aimed at key political actors who will be willing to give

meetings between the members of the Government and Ivica Todorić, at least early in 2017." (Bićanić, 2017, p. 50).

[12] Ivica Todoric argues: "Lex Agrokor was written by Martina Dalić, Ante Ramljak and Boris Šavorić, and with their partners they nowadays they rule the Agrokor that is hijacked by that exact law. Lex is undoubtedly a private deal that was organized by Martina Dalić and pushed through highest state institutions. In their criminal activities they are hiding behind Lex's legal provisions and the audit opinion on the financial statements of the extraordinary administration. ... Agrokor's Extraordinary Administration has not yet explained all the parts of the financial statements to which the auditor refused to give an opinion indicating the deliberate commission of criminal offenses in order to avoid the law and afford unearned financial benefit to the selected Ramljak's players. In its opinion, the PWC refused to confirm the amount of total losses of Agrokor in the amount of HRK 18 billion and negative capital in the amount of HRK 14.5 billion. If the auditor refused to confirm the stated loss, how did the extraordinary adminstration reached the amount of this loss? It is possible that this loss is entirely fictitious and the financial statements of Agrokor for 2016 do not really exist, as is apparent from the enormous reservations the auditor has stated in his opinion. If the auditor refused to confirm the said loss, how then the extraordinary administration intends to disown me and hand over Agrokor to the creditors." (Todorić, 2017).

up this model of political economy, not because of their altruism, but to preserve their own existence. Preferably, a stronger push would completely remove the existing elites and ultimately stop the perpetuation of this degenerate economic model.

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VALUE-BASED APPROACH FOR MEASURING THE INTELLECTUAL CAPITAL OF THE UNIVERSITY

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ABSTRACT

Taking into account the growing role of universities around the world, the question of applying adequate methods for evaluating the universities is being updated with the aim of making decisions by various stakeholders including the state, university entrants, employers, academics, etc. Traditional methods based on ratings and universities reports have a number of significant shortcomings and can not often be used. Therefore, it is important to develop and implement alternative approaches for assessing the performance of universities, one of which is the evaluation of the intellectual capital of the university. The aim of this paper is to analyze the notion, structure of the intellectual capital and existing scorecard methods of assessment the intellectual capital, and substantiate implementation of the value-based methods. To assess particular elements of intellectual capital, an income, cost and market approaches are used. To assess the intellectual capital in general, it is proposed to use the group of market capitalization methods. The study showed that the value-based approach provides an adequate assessment of the effectiveness of universities for educational systems where market pricing is applied. For socially-oriented educational systems with a high level of state involvement, the calculations may indicate the degree of underfinancing of the education system, or insufficient return on capital.

Keywords: *intellectual capital, value-based approach, universities*

1. INTRODUCTION

The last decades have been marked by special attention to higher education all over the world. This is because the development of the economies is increasingly determined by the quality of human capital. In addition, the technological revolution significantly changes both the labor and education market. Therefore, higher education is subject to reform in many countries. Evaluation of the effectiveness of these reforms requires the appropriate assessment methods. It is also needed in general for managing the system of higher education, making managerial and other decisions. There are many different stakeholders which are interested in assessing the universities, starting from the government, which considers higher education system as important element for solving strategic tasks such as, for example, living standards, poverty reduction or economic development of the regions, to labor market representatives and professional communities. Each group of stakeholders has its own objectives and evaluation criteria, and sometime these criteria may contradict each other. At the same time, the set of assessment tools is rather small and basically comes down to different ratings and rankings, and also to monitoring systems based on reporting to the regulatory body. One of the alternative ways of assessing the universities is to measure its intellectual capital, which is evaluated primarily through a system of indicators (Bratianu, 2009, p.64). By the way, existing methods need to be improved and also it is advisable to descry the development of new tools. For this it is necessary to consider:

- methodological basis for assessing the universities;
- intellectual capital as the most important factor of the university performance;
- features of higher education institutions and systems through the prism of intellectual capital;
- methods for assessing the intellectual capital of universities;

- the advantages and disadvantages of value-based methods for assessing the intellectual capital of universities.

2. METHOLOGICAL BASIS AND TOOLKIT FOR EVALUATING UNIVERSITIES

There are many indicators of the universities performance and tools for their assessment - the result is a very bitty picture, which is difficult to understand. To systemize the existing tools we need to answer at least five questions:

- What do we evaluate? (object and subject of evaluation);
- For whom do we evaluate? (evaluation users);
- Why do we evaluate? (evaluation objectives);
- Who evaluates? (the appraiser);
- How do we evaluate? (assessment methods, tools).

Answers to these questions and their comparison will help classify the assessment toolkit and make evaluation results more interpretable (Table 1).

Table 1. Systematization of the tools for evaluating universities (compiled by the author)

What do we evaluate? (object)	- The university; - University units (faculties, schools, etc.); - Fields or spheres of education; - Types of activities (educational, scientific, innovative, international, financial, etc.); - Stakeholder groups (applicants, students, graduates, academics); - Programs or processes (programs, integration, interaction, etc.); - Results, factors (admission, graduation, income, intellectual capital, etc.).
What do we evaluate? (subject)	- Efficiency; - Quality; - Scale, volume, quantity, share, value; - Popularity, prestige, demand; - Reputation, influence; - Competitiveness; - Intensity of activity; - Compliance with criteria, specifications.
For whom do we evaluate?	- The state (government, regulating and controlling bodies, sectoral ministries and departments, regional and municipal authorities); - Labor market (employers, recruitment agencies, employment services); - Innovative business; - Professional communities; - Applicants and other decision-makers (parents, etc.); - Academics (universities, professors, students, etc).
Why do we evaluate?	- Solution of national, regional and municipal tasks; - Solution of industry, professional tasks; - Meeting the challenges of innovative business; - Decision-making in administrative, organizational, personnel and financial spheres; - Recruitment, training and career growth; - Admission to the university.
Who evaluates?	- Regulating and controlling bodies; - Expert community (rating agencies, media, consulting companies, individual experts); - Consumers (employers, graduates, students, entrants); - Academics (professors, scientists).
How do we evaluate?	- Licensing, accreditation, membership; - Separate indicators and indexes; - Surveys; - Ratings and rankings.

The most popular tool for public evaluation of the university are ratings and rankings. Ratings began to be actively used at the end of the last century, since then the number of them

is constantly growing, and at the same time, the number of critics is also growing. Here are just a few complaints to them: firstly, many ratings are subjective, because according to various methods up to 70% of the weight in the ratings can take the results of opinions. Secondly, the idea of ranking universities comes from the hypothesis that universities are similar objects. But the universities can be public and private, large and small, broad- and narrow-profile, classical and applied, with emphasis on education or science, and also universities work in different countries and regions with different historical, social and cultural context. That is why the comparison of universities may look strange. No one has any idea to make a transport rating and include buses, trucks and racing cars on the basis that the purpose of all transport is similar - moving from point A to point B. The implementation of the same logic in the ratings of universities is a little embarrassing. Thirdly, the ratings often do not take into account the group of stakeholders to which they are targeted and their aims. Fourthly, it is not always clear what is evaluated - efficiency, attractiveness, reputation, relevance, innovativeness - and what exactly means behind all these terms. The "thoughtless" use of ratings may lead to different dangerous consequences. The orientation of applicants and professors on the ratings strengthens strong universities and weakens the "average", wchich are also necessary for the development of the country and a specific region. It's no secret that many advantages of universities are formed by attracting high-quality applicants at the entrance - in fact, it can be considered more as an image achievement that does not always correlate with issues of qualitative education. As well as the success of graduates of universities are not always due to study in a particular university. Within the framework of international ratings, there is an obvious "bias" towards American universities, which is effectively used by the USA to attract the best students and professors from all over the world. In Russia the promotion, popularization and orientation of Russian applicants to national ratings lead to the erosion of talented students from the regions to Moscow. The second consequence is that decision-making based on ratings can lead to different distortions: the goal at whatever happens to go up in the rating regardless of the specifics of the university and its resources is often false and it harms both the university itself and the whole education system. Ann Mroz, the editor of Times Higher Education (THE) rating pointed out: “we want to create a ranking that is accepted, understood and respected: a serious tool for the sector, not just an annual curiosity” (Baty, 2010). We should admit that the existing ratings really look more like an "attraction" and a deep rethinking of the methodology and the very possibility of evaluating universities through ratings is necessary. Recognizing that the ratings play an important PR-function, many countries call for refusal to focus on international ratings and try to develop their own. For example, the Moscow State University presented the "Three Missions of the University" rating, which, however, did not differ fundamentally from the already existing ratings. In addition to improving the existing methods of ratings, multidimensional rankings such as CHE University and U-Multirank are an important tools, primarily from the standpoint of ideology. This tool refuses to directly compare universities, and compares only similar universities and within the same indicator (Research Rankings, 2016). Thus, using multiranks we avoid the disputable problem of determining the weights of the indicators of education, research, innovations, international activities and so on which should enter into the final index of the university. A fundamentally new approach is to assess the university through measuring of its intellectual capital (IC). Intellectual capital is knowledge, skills, experience, relations, reputation, programs and processes and intellectual property, accumulated and formalized in the university. IC is so-called intangible assets. University is not about buildings and classrooms, but primarily about people, so we should admit that IC is the main capital of the university. So if we measure the intellectual capital we provide the assessment of the main development and perfprmance factor of the university.

3. INTELLECTUAL CAPITAL OF THE UNIVERSITY

3.1. Notion and structure of intellectual capital

There are a large number of definitions and approaches to the structure of IC. The fundamental differences are as follows:

- IC can be viewed as a static asset of an organization, or as an activity or process;
- IC is characterized by different components (knowledge, experience, motivation, values, etc.)

and is determined through them;

- IC may have different expressions (value, assets, competitive advantage, etc.)
- IC has a different essence: we can understand capital as a resource, as a potential or as a result (Novgorodov, 2017, p.41).

Let's give several definitions of IC as an example. The editor of «Fortune» magazine Thomas Stewart believes that IC is "intellectual material that includes knowledge, experience, information, intellectual property and participates in the creation of values" (Stewart, 2007, p.18). According to Russian researcher V.Efremov, IC is "the knowledge of the organization, expressed in a clear, unambiguous and easily transferable form" (Efremov, 1999, p.5). Another Russian researcher B.Leontiev gives the following definition: "intellectual capital is the value of intellectual assets available to the company, including intellectual property, the natural and acquired intellectual abilities and skills of personnel, as well as accumulated knowledge bases and useful relationships with other entities" (Leontiev, 2002, p.44). It follows from these definitions that V. Efremov understands capital as a resource, T. Stewart - as a potential (opportunity), and B. Leontiev - as a result (asset). As for the structure of IC, two approaches can be distinguished. The first is based on the consideration of the IC "from the top down", the identification of fundamental differences in the components of capital, which could become a classification criterion justifying this particular division. The second approach - "from the bottom up", is used to identify any element of capital with its further "embedding" in the already known structure of the IC. Within the first approach, the following IC elements can be distinguished:

1. Human and structural capital (Edvinsson, Malone, 1999, p.435). An attribute of structuring is the belonging to the company. Human capital is a part of the company only during working period. Structural capital is entirely owned by the company.
2. Human, organizational and relational capital (Roos, Pike, Fernström, 2010, p.65) or human competencies, internal structure and external structure (Sveby, 1997, p.80). This approach develops the previous structuring, dividing the structural capital into two parts based on the relationship to the organization: organizational capital is "internal," and the relational capital is "external", which characterizes the ties, contacts, and relationships of the organization with the external environment.
3. Human assets, infrastructure assets, market assets and intellectual property (Brooking, 2001, p.72). Essentially distinguishes intellectual property as a separate class of assets within the IC, which can be separated from the organization, sold, put into circulation, etc.

Within the second approach, researchers distinguished, for example, technological capital, social capital, spiritual capital (Khalique, Shaari, Isa, 2011), emotional capital (Kolpakova, 2008, p.45]), cultural and moral capital (Gladysheva, Gorbunova, 2013, p.50), value capital (Novgorodov, 2017, p.44) and so on.

3.2. Features of universities from the perspective of intellectual capital

What features of universities should be taken into account when analyzing the concept and structure of IC? Higher education performs three socially significant functions: education, research and public services. Many researchers emphasize high social significance of universities, using term «missions». At the same time, in addition to those three missions, it is also worthwhile to highlight:

a) upbringing activities. In Russia and some other conutries universities play a significant role in the upbringing of young people, involving them in sports, cultural, patriotic and other projects;
b) innovative activities, which mean the transformation of knowledge into value. A number of researchers consider innovation activities in combination with scientific, and some include it in the "third mission" (public services). Innovative activity of the university is realized through the relevant infrastructure - technology transfer centers, prototyping centers, university technoparks and business incubators (the so-called "innovation infrastructure");
c) entrepreneurial activities, which are also usually associated only with innovations (commercialization of intellectual property, the establishment of spin-offs and spin-outs, etc.), but the broader approach implies the monetization of all activities of the institution, including the admission of students, the development of additional education programs, research grants and agreements, the involvement of sponsors, the establishment of endowments, etc.);
d) international activities aimed at the internationalization of science and education, as well as the solution of other, including political and economic tasks;
e) activities which are significant for the state, including the integration of the university into solving of global problems and tasks that go beyond the "traditional" framework of research and education;
f) supporting activities - vocational guidance, admissions, personnel, marketing, economic, financial, infrastructural and other types of activities designed to support the core business processes of the university.

The different, human-centered approach, focuses on personnel and srudents. Professors are treated not simply as one of university resources, and students - only as "customers". The human development is seen as the main goal. The presence of two approaches explains the fact that there is a different understanding of what is the "product" of the university. On the one hand, the "product" can be considered as educational program, results of research, university's intellectual property or an established spin-off. On the other hand, "product" is a qualified and highley demanded graduate of a university. The mentioned features of universities should be taken into account as follows:

- First, for countries with high priority of upbringing activities, it is necessary to identify and evaluate such elements of the IC as spiritual, value and moral capital.
- Secondly, it is necessary to determine the role of different stakeholders in the structure of the IC of the university. If students are the part of the university they should be considered as a component of human capital. If students are “consumers”, they should be a part of relational capital. Also it is necessary to specify the role of the state: is it a client (customer) or a shareholder (investor) of a state-funded university?
- Thirdly, universities have a very wide range of IC applications: educational programs, business processes, textbooks, scientific publications, intellectual property, extra-curricular activities, etc. and it is necessary to be able to compare the results of IC application on a single criterion.

4. METHODS FOR EVALUATING THE INTELLECTUAL CAPITAL OF THE UNIVERSITY

According to Karl-Eric Sveiby, there are 42 methods of evaluating the intellectual capital which are divided into 4 groups:

- Direct intellectual capital methods (DIC);
- Market capitalization methods (MCM);
- Return on assets methods (ROA);
- Scorecard methods (SC).

(Sveyby, 2015)

The first three groups of methods make it possible to obtain a $-valuation of capital. The result of applying the fourth group of methods are various indicators in the form of scores and other quantitative values. It should be noted that the proposed classification of methods does not identify a group based on subjective opinions (expert and sociological surveys, etc.) Over the past 20 years, many researchers offer methods for measuring IC based on the scorecard approach. A common drawback of these methods is that a large number of different indicators reflecting human, organizational and relational capital appear at the "output", which is difficult to evaluate in a complex. Attempts were made to develop an integral index of IC, but it has many disadvantages that have been described for ratings. In most cases, the methods for evaluating the IC of the universities assess different types of capital - both as a potential and as a result. To understand the difference, there is an example of a PhD who is employed as the university staff, but does not actually engage in education and research activities. From the perspective of capital as a potential, the university has intellectual capital. If we understand IC as a result formalized in student's knowledge, educational program, textbook, article or grant, then there is no intellectual capital. Thus, existing scorecard methods should be improved and also it is important to consider an alternative. In spite of the fact that capital is defined as value, value-based indicators are not used in public assessment of universities. If we look at the business market, we will see that the value of the company is one of the most important indicators of business performance. The market value of a business (capitalization) is the basis for calculating the set of indicators on the basis of investment and management decision-making. The market value takes into account many factors: the current state of the business and expectations. The market value necessarily reflects the company's effectiveness, since both current and forecasted revenues and costs are included in the calculation. The value includes both the material component (property) and intangible assets (intellectual capital). The complexity of the $-value assessment of universities is that many of the results of the university's activities at first glance have no monetary value. However, there are several reasons why it is necessary to evaluate the value of the university as a whole and the value of its elements. Firstly, in fact, universities are objects of purchase and sale, and not only private, but public also. Secondly, universities are forced to evaluate certain results in money through setting wages, developing a bonus system, determining the size of grants, etc. The basis for $-evaluation can be both current or future incomes and costs incurred by the university. Thus, the valuation of IC is based on cash flows. IC as a resource and potential is estimated through SC methods. IC as a result (cash flows) - through $ -value methods. In this approach, stakeholders are treated as investors. The state provides financing, students in addition to money invest time, employers through the salary and other expenses invest in the employed graduates. The elements of valuation divided into 5 areas of activity of the university: education, research, innovation, entrepreneurship and social impact, are shown in the Table 2.

Table 2 – Elements of valuation depending on area of activity (compiled by the author)

Type of capital	Education	Research	Innovation	Entrepreneurship	Social impact
IC as resource and potential (SC assessment)	Staff, programmes and processes appraisal	Inventions, publications and citations	Intellectual property registered	Intellectual property transferred, spin-offs and spin-outs	Social development indicators
IC as result ($-value assessment)	Income, wages	Income, grants, wages	Intellectual property value	Share value, dividends	Fundraising, endowments, donations

What can be taken as a basis for appraisal of the universities? First, these are the cash flows generated by the university from various sources: from educational, scientific and entrepreneurial activities, through budget financing, payments, fundraising and donations. Second, it is the valuation of the university's intangible assets, such as know-how, patents and shares in spin-off companies. Total valuation of the university can be estimated as the sum of capitalized cash flows and the valuation of intangible assets. To capitalize cash flows we should use multiples that are common for this type of activity. When valuing private universities for sale, the multiplier from 7 to 10 is used to the marginal income of the university. The general capitalization of the university consists of material and intangible assets. If we subtract the value of the material component from the total capitalization, then the difference can be interpreted as the value of IC. The trial appraisal for a number of Russian and foreign universities shows interesting results using market capitalization methods (MCM). The calculations show that only 10-30% of the revenues in Russian universities are generated by the IC, and the rest - by tangible assets. Calculations can even show the negative value of intellectual capital. If we consider the university as a business, this means that it is more profitable for the owner to sell or lease property than to engage in educational and scientific activities using this property. That is, intellectual capital reduces the cash flow relative to some average level of profitability, rather than increases it. This sounds as a nonsense and does not relate to the previous assertion that the IC is the main capital for the university. In fact, the results can be interpreted as follows: most Russian universities are underfinanced, and the cost of education and research does not reflect the value that is produced. Indeed, the cost of budget financing in many areas of education is 1000-2000 dollars per year, the average commercial cost of education is 1500 dollars per year, which is lower than the cost of education in many countries of the world. In many foreign universities, the level of aggregate income for a certain unit (1 professor, 1 student, 1 square meter) is much higher than in Russia. In addition, the sources of funding for higher education are better diversified, including income from entrepreneurial activity and fundraising. Accordingly, the value of IC, calculated as the difference between total capitalization and the value of material assets, is higher in foreign universities. We can see the inverse proportion where 20% is the contribution of the material assets, and 80% of intangible assets. In general, this indicates a different national education models:

- market-oriented systems with relatively free pricing and a wide range of sources of financing. Such a system tries to concentrate resources within themselves and not to give them "outside" for free - this is one of the ideological basis for "entrepreneurial universities". Examples of market-oriented higher education systems include the systems of the United States, Canada and the United Kingdom;
- socially-oriented systems with a high role of the state (assessment, control, financing, etc.) and pricing regulation. Such a system is typical for Russia and some European countries. If the high role of the state is combined with inadequate funding, the sphere of higher

education becomes a "donor" of other beneficiaries - households, the labor market, etc. In this sense, universities considered as a tool for solving primarily external problems, rather than internal ones.

5. CONSLUSION

One of the alternative ways to assess the activities of the university is to measure the value of its intellectual capital. The attractiveness of using value as a basis for comparing universities is as follows:

1. Value is an integral indicator of of universities, which facilitates the perception of the assessment and comparison of universities.
2. Value is an absolute indicator (in contrast to the place in the ranking or ranking, which is always relative).
3. Value can be estimated in dynamics, and absolute or relative increase in the value of intellectual capital can be calculated.
4. Value takes costs into account, and therefore it is possible to talk about economic effectiveness of universities.
5. Appraisal toolkit (including appraisal of intangibles, such as reputation, goodwill, etc.) is well developed.
6. Universities can apply value-based management (VBM) tools for decision-making.
7. Value can be considered as the basis for calculating many other relative indicators.

However, the results of the evaluation of the IC should be interpreted differently based on the characteristics of the national educational model in which they are used. The appraisal of the IC cost gives the correct results for universities in market-oriented models. Most universities in this model have a wide range of funding sources and try to implement the model of the "entrepreneurial university", commercializing the results of activities. When using the appraisal in socially-oriented educational systems, the evaluation of the IC can serve as an indicator of underfunding of the university, and it is possible to calculate the deficit of finance and fair pricing for the university. Such an evaluation gives an economic assessment of the universities, but does not take into account some of the indirect and non-monetary results of their activities. The appraisal of IC value can not replace existing methods, but can serve as a supplement to them.

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FINANCING OF AGRICULTURE AND RURAL AREAS IN THE BALTIC STATES

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ABSTRACT

Agriculture in EU member states is supported and protected under the Common Agricultural Policy (CAP). One of the more important objectives of this policy is to ensure sustainable development of rural areas by providing the appropriate quality of life for their populations and fully utilizing factors of production in agriculture. The sustainable model also promotes family agriculture, which plays many non-production functions. This is particularly significant in the case of new EU member states, in which there is high underdevelopment. Studies conducted until now show that CAP funds improved production and economic results of agricultural holdings and contributed to improvement of the condition of infrastructure in the rural areas of these countries. Direct subsidies and funds from the Rural Area Development Programme played a central role. This study assesses the effects of financing the development of agriculture and rural areas in Estonia, Lithuania, Latvia and Poland. Agricultural holdings' factors of production were assessed and their developmental potential was evaluated. The income of a family-owned agricultural holding was adopted as the basic measure of a farm's capability of expanded reproduction and development. Selected elements of financial analysis were applied. The dependency between net investment value and debt level were investigated using coefficients of determination. Evaluation of the development of rural areas was based on financial indicators determining progress in expenditures under RDP 2007-2013.

Keywords: *agriculture, Baltic States, development, financing, rural areas*

1. INTRODUCTION

After entering the EU in 2004, the Baltic States, being Estonia, Lithuania, Latvia and Poland, benefited from the mechanisms of the Common Agricultural Policy. One of this policy's major objectives is to ensure the sustainable development of rural areas by providing the population with the appropriate quality of life and fully utilizing factors of production in agriculture. Funds allocated to this sector have a direct and indirect influence on the development of agriculture and rural areas. The direct effects of agricultural policy can be seen, above all, in the improvement of incomes among the farming population, fixed assets to total assets ratios, as well as of the condition of infrastructure in rural areas. An indirect, but positive, effect of financial support for agriculture is the development of other branches of industry in the region. Studies conducted by Dzemydaite (2017) confirmed the influence of the agricultural sector on the economy through inter-sector relationships and multiplier effects. Hence, the role of the agricultural sector is considered to be indispensable to the economic growth of rural areas. Investment activity is listed among the factors of agricultural development (Józwiak, 2004). This is important from the perspective of national food safety and development of rural areas. The ability to function within the framework of the Common Agricultural Policy increased the potential for acquiring funds for investment in agriculture, and such investment is now intensified. Agricultural holdings that execute investments achieve greater production efficiency and capacity for expanded reproduction (Kobus, 2009).

Despite the fact that the concentration of fixed assets varies in individual Baltic States, a similar tendency exists. Growth of the role of large agricultural holdings in managing fixed assets and generating value added occurred in all cases (Leimane et al. 2017, Kołoszko-Chomentowska and Sieczko, 2017). From an individual farm's perspective, possibilities of growth mainly

depend on the level of income from the farm. The greater the income, the more farmers are inclined to invest in fixed assets and to introduce innovative solutions as well as expanded reproduction (Zegar, 2008). Farms' possibilities for growth were broadened after entry into the EU. In Poland, before 2004, about 25 thousand farms exhibited features of competitiveness, and in the first decade of the current century, about 295 thousand farms characterized by competitive capacities were functioning (Józwiak, 2016). The Rural Development Programme in Poland (RDP) plays an important role in financing the development of rural areas. During the period of 2007-20143 measures were taken to improve working and living conditions in rural areas. The goal of this study is to evaluate financing of agriculture and rural areas in Estonia, Lithuania, Latvia and Poland with funds from the EU budget during the years 2007-2013.

2. METHODOLOGY

The research problem was addressed on the basis of data found in the FADN system. Data from farms is publicly available (European …, 2015). The scope of analysis covers two time periods: the years 2007 and 2013. Analysis of changes in available factors of production and economic results of agricultural holdings was conducted. Selected methods of financial analysis were also applied (Gabrusewicz 2007). One method of evaluating fixed asset reproduction and development of farms is the fixed asset reproduction rate. This index indicates the type of reproduction occurring on the farm (simple, expanded, narrowed). It was calculated according to the formula: (net investments/fixed assets)x100%, which, according to FADN, takes on the form: (SE521/SE441)x 100%. The dependence between the net value of investment and debt level were investigated by means of the coefficient of determination. Evaluation of the development of rural areas was based on financial indicators determining progress in expenditures for development of rural areas under Rural Development Programme 2007-2013, as part of axis 3 "Improving the quality of life in rural areas and encouraging diversification of the rural economy". Data is from the European Network for Rural Development (RDP Monitoring..).

3. RESULTS

In 2007-2013, the degree to which farms were equipped with factors of production changed (tab. 1). Land concentration processes that improve the agrarian structure are observed. An increase in the surface area of farmland occurred in all of the countries, the greatest being in Estonia (by 19.02 ha) and Lithuania (by 6.38 ha). There was a relatively smaller increase of farmland area in Poland (by 0.78 ha) and in Lithuania (by 0.56 ha). Changes in farmland area were influenced by capital saturation of land. The value of fixed assets per 1 ha of farmland is indicative of this. This growth was slightly above 15% for Lithuanian farms, and reached 53.5% for Latvian farms. Particularly high growth of the value of fixed assets occurred for Polish farms, by as much as 89%. Polish farms stand out in terms of the level of fixed assets. As early as in 2007, the level of fixed assets was significantly higher than in other countries. This is probably the result of the smaller mean area of farmland in Polish farms. The main component of fixed assets are technical factors of production, and they had a decisive influence on increasing the value of assets. This indicates that farms were better equipped with machinery and appliances. Growth of the value of own equity is a consequence of this and occurred in all countries.

No pattern of any kind was observed in outlays of current assets. The variable value of current assets arises from the intensity of production, which is why there are significant differences in levels of their consumption. In terms of employment in agriculture, labour resources decreased in all countries. This phenomenon applies to the majority of new EU member states (Koloszko-Chomentowska, 2014). Own work is predominant in Poland, and hired work is only a

supplement to it. This situation is typical for family-owned farms, which are the basic form of agricultural organization. The situation in Lithuanian farms is similar. Meanwhile, in Estonia and Latvia, outlays for hired labour are relatively high, which is due to the size of farms (large-area farms owned by companies are predominant) and how production is organized.

Table 1: Production factors of agricultural holdings in Estonia, Lithuania, Latvia (*FADN data 2015)*

Specification	Estonia	Lithuania	Latvia	Poland
2007				
Utilised agricultural area UAA (ha)	109.25	43.93	68.60	18.33
Total labour input (AWU[1])	2.52	1.93	2.41	1.76
Unpaid labour input (FWU[2])	1.35	1.51	1.49	1.52
Fixed assets ((EUR· ha^{-1})	2 060	1 358	927	4 017
Current assets ((EUR· ha^{-1})	1 416	686	527	843
Equity ((EUR· ha^{-1})	2 183	1 716	981	4 335
2013				
Utilised agricultural area UAA (ha)	128.27	50.31	69.16	19.11
Total labour input (AWU[1])	1.99	1.83	2.05	1.72
Unpaid labour input (FWU[2])	0.87	1.46	1.35	1.50
Fixed assets ((EUR· ha^{-1})	1507	1567	1422	7622
Current assets ((EUR· ha^{-1})	273	848	709	1057
Equity ((EUR· ha^{-1})	1401	2064	1489	8178

1 – Annual Work Unit, 2 – Family Work Unit

Growth of land productivity, understood as the value of production per 1 ha of farmland occurred in all of the studied countries (tab. 2). An increase in the value of production per 1 ha of over 20% was observed in Estonia and Latvia, while this increase was smaller in Lithuania (14.5%) and the smallest in Poland (9.3%). Labor efficiency is an indicator of competitiveness in agriculture. In 2007-2013, the net value added per person working in agriculture grew, with the exception of Lithuania. This growth amounted to over 23% in the case of Estonia, to 4.5% in Poland and only 2.5% in Latvia. Labor efficiency decreased by 6.5% with respect to Lithuanian agriculture. There were also changes in the level of income of a family-owned agricultural holding. Income per 1 ha of farmland decreased in all countries. On one hand, this is probably due to the increase in the area of agricultural holdings' farmland, and on the other, due to lower mean income in 2013 caused by unfavorable market conditions, mainly lower prices of sold agricultural products. The profitability of fixed assets decreased in all countries. In this case, the value of fixed assets increased while the level of agricultural income decreased, which is why the profitability of assets was lower in 2013. The pursuit of better technical machinery and equipment for farms is a natural tendency. An increase of technical factors of production has an influence reducing the efficiency of production assets. It is difficult to unambiguously evaluate this phenomenon in the studied farms, because there was high variability of the efficiency of individual factors of production over time and between individual countries, mainly due to varying market conditions.

Table 2: Production and economic indicators (*own calculation based on FADN data 2015*)

Specification	Estonia	Lithuania	Latvia	Poland
2007				
Production value (EUR· ha^{-1})	687	739	678	1 503
Net added value (EUR·AWU^{-1})	13 455	9 293	7 980	6 710
Farm income (EUR· ha^{-1})	396	366	223	544
Farm income ((EUR· fixed assets $value^{-1}$)	0.19	0.27	0.24	0.13
Farm income (EUR·FWU^{-1})	12 159	9 585	8 720	6 414
Gross investment (EUR)	24 815	9 148	14 932	4 430
Net investment (EUR)	- 901	5 499	8 757	712
Rate of fixed assets reinvestment	-0.01	0.09	0.13	0.01
2013				
Production value (EUR· ha^{-1})	868	846	820	1 643
Net added value (EUR·AWU^{-1})	16 618	8 693	8 181	7 017
Farm income (EUR· ha^{-1})	133	265	143	524
Farm income ((EUR· fixed assets $value^{-1}$)	0.09	0.18	0.10	0.07
Farm income (EUR·FWU^{-1})	13 676	9 771	6 375	6 510
Gross investment (EUR)	37 300	12 015	18 182	4 073
Net investment (EUR)	2 145	4 188	9 277	-653
Rate of fixed assets reinvestment	0.15	0.08	0.15	- 0.01

Property status and capabilities of its reproduction are very varied. The net value of investment (corrected by depreciation) provides information on fixed asset reproduction processes. In the agricultural holdings of Estonia, capacities for reproduction of assets decidedly increased (from -0.01 in 2007 to 0.15 in 2013). In the case of Lithuania and Latvia, these capacities remained at nearly the same level. Polish farms were in the most difficult situation. In 2007, the net value of investment and asset reproduction rate were minimally positive, and they were negative in 2013, which indicates systematic decapitalization of fixed assets. Such phenomena are indicative of a relatively poor level of technical equipment of farms in previous years. In general, this was worn out equipment that remained in use for production. It should be recognized that farms in all studied countries were not capable of expanded reproduction. Despite the significant improvement of the degree to which farms are equipped with machinery and equipment in recent years, fixed asset reproduction processes did not yet occur. The high share of own equity (76-89%) indicates that a farm has strong financial foundations and is exposed to less risk from activity, but on the other hand, it also limits the development capabilities of these entities. This is also confirmed by statistical analysis, where the dependence between the share of external funds and net value of investment was very low, with coefficient of determination R^2 equal to 0.173.

Table following on the next page

Table 3: Indicators of achievement of tasks Axis 3 RDP (*RDP Monitoring…*)

Measure	output	Estonia		Lithuania		Latvia		Poland	
		value	% on target	value	% on target	value	% on target	value	% on target
Diversification into non-agricultural activities	Number of benefits	126	25.2	114	57.0	-	-	9 169	46.4
	Total volume of investment (thous.EUR)	7 164.19	7.8	25 143.0	40.0	-	-	542 206.19	66.7
Business creation and development	Number of microentreprises supported/created	578	115.6	275	68.8	391	17.0	4 199	15.4
Encouragement of tourism activities	Number of new actions supported	1 124	> 120	224	42.3	215	58.7	390	>120
	Total volume of investment (thous. EUR)	37 118.91	-	30 908.0	27.1	9 651.91	37.3	34 681.0	>120
Basic services for the economy and rural population	Number of supported actions	49	9.8	-	-	889	>120	1 834	8.6
	Total volume of investment (thous. EUR)	294.72	11.5	-	-	84 132.46	76.7	961 543.36	41.7
Village renewal and development	Number of villages where action took place	9 727	> 120	2 040	>120	-	-	3 659	41.6
	Total volume of investment (thous. EUR)	48 979.20	>120	34 954.10	60.4	-	-	344 506.66	55.8
Conservation and upgrading of the rural heritage	Number of rural heritage action supported	16	6.4	-	-	14	>120	480	89.8
	Total volume of investment (thous. EUR)	170.83	13.4	-	-	1 122.90	54.4	37 915.80	91.1

Measures improving the living conditions of residents of rural areas were financed as part of support for the development of rural areas (tab. 3). The first group of measures pertains to support for the creation and development of non-agricultural activity. The goal of this measure is to create non-agricultural sources of income and promote non-agricultural employment in rural areas. The second group consists of instruments intended to improve quality of life. They pertain to rural renewal, improvement of the condition of cultural and natural heritage, and improvement of access to municipal services such as supply of water, renewable energy, wastewater removal and waste management. The aim is to improve living conditions by satisfying the social and cultural needs of rural residents and promoting rural areas. As a consequence, rural areas will become more attractive to tourists and investors. The number of beneficiaries of individual measures varies, which is due to the number of residents in the given country and interest in the given measure. It can be observed that measures promoting cultural heritage and the development of tourism services enjoyed much interest in all countries. Promotion of entrepreneurship and creation of micro-enterprises were particularly successful in Estonia (115.6% of the plan). Two programmes enjoyed much interest in Poland and Lithuania: “Diversification into non-agricultural activities” (46.4% and 57%, respectively) and in Lithuania “Business creation and development”(68.8%).

In effect, new non-agricultural jobs and new sources of income were created for the farming population. Thus, these programmes achieved their objectives, namely to promote non-agricultural employment in rural areas and increase the incomes of the rural population.

4. CONCLUSION

Agriculture varies between the Baltic States. There is significant production potential, but due to the unfavorable relationships between factors of production, their utilization is still not very efficient. Entities better equipped with these factors are less susceptible to a market downturn, or adapt better to their changing surroundings. The integration of the Baltic States into the EU has had a positive influence on improving the financial situation of agricultural holdings, including their modernization. Favorable changes occurred in the fixed assets to total assets ratio of farms. Farms in all countries enriched themselves with modern machinery and equipment and modernized farm buildings. An increase of production potential results in growth of the capital saturation of land and an increase in the value of own equity. This indicates modernization of the production process and improvement of agricultural holdings' competitiveness. The level of income worked out from a family-owned farm as well as reproduction of fixed assets varied greatly during the years 2007-2013. Land productivity and net value added increased. Meanwhile, the level of income from a family-owned farm was dependent on market conditions, which were unfavorable in 2013. Agricultural holdings require protection to sustain the vitality of rural areas as a public good in the economic, natural and socio-cultural dimension. This is why measures related to improving the attractiveness of rural areas are being financed. The aim is to improve the living and working conditions of a large part of society, as well as to promote rural areas as tourist destinations. Analysis of data on financing of the development of rural areas in the Baltic States indicates that funds from the EU budget contributed to the economic diversification of rural areas, although the needs of these areas are far greater.

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THE LINK BETWEEN BRAND VALUE AND INTELLECTUAL CAPITAL: INCORPORATING BRANDS INTO ECONOMIC VALUATION

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ABSTRACT

The brand is an intangible marketing asset that includes, but is not limited to, names, terms, signs, symbols, logos and designs, or a combination thereof, used to identify goods, services or entities, or a combination of them, creating distinctive associations and images in the minds of consumers and other stakeholders, generating economic value and/or benefits. On the other hand, the intellectual capital is the economic value of three intangible asset categories of the organization: human capital (knowledge, skills and abilities held by employees of an organization), structural capital (computer systems, distribution networks and supply chains) and relational capital (the totality of relations between the organization and its stakeholders). Brands are often neglected in economic valuation because, in general, current accounting regulations do not allow for the real value of intangible assets to be reflected in the company's financial statements. To overcome this shortcoming, experienced economic players track the value of brands through their periodic assessment. This article addresses the main brand valuation methods and highlights how the brand affects the value of an organization, directly and indirectly, by assessing the brand's financial impact on all stakeholders (costumers/consumers, suppliers, employees, creditors, government authorities etc.). At the same time, the paper shows that brand development is an opportunity that should not be ignored by companies because it does not involve huge material resources but derives from the valorization of creativity and innovation, components of the intellectual capital of the organization.

Keywords: *Brand, Intellectual capital, Valuation*

1. INTRODUCTION

The brand - defined as an intangible marketing asset that includes, but is not limited to, names, terms, signs, symbols, logos and designs, or a combination thereof, used to identify goods, services or entities, or a combination of them, creating distinctive associations and images in the minds of consumers and other stakeholders, generating economic value and/or benefits (ISO 10668, p. 1)-has become one of the most defining aspects in marketing of products, services or organizations for the contemporary consumer. Branding is an important activity for countries, cities or for governmental programs, but also for private companies, which have as core business selling goods and services to consumers. Therefore, private companies all over the world have in their portfolio from one to tens. An example is Procter & Gamble, which has more than 65 brands with sales of more than 1 billion per brand (Procter&Gamble, 2016, p. 3, 10). In recent time, some financial analysts value companies taking into consideration, together with intangible factors, also intangible ones, which implies recognizing the fact that a good part of the value of the companies derives from the existence of these intangible value. Recent studies showed that about 60% of the value of companies is given by the intangible assets. These intangible assets include brands, client relation, human capital, patents, know-how and others intangible assets based on technology. (Brand Finance GIFT^{TM}, 2017, p. 46). Since the '80, has been recognized that there are many intangible factors, like company brands that influence in a decisive way their value.

It became a practice in many company acquisition that the paid price to be higher than the value of intangible assets, taking into consideration the increase potential of brands or the effective value of those brands. Some relevant examples include the acquisition of Rowntree Company by Nestle, Pilsbury Company by Grand Metropolitan or Nabisco's European by Danone (Clifton, Simmons, 2003, p. 30). The most important issue with these procedure named accounting for goodwill is that it couldn't offer a solid scientific base to value intangibles, the value of intangible assets was calculated in an arbitrary way, based on the knowledge of buyer of the company that was intended for buying. To eliminate this shortcoming, many companies search for new methods to calculate the value of intangible assets and of introducing their value in the total business value. In the mid-80's, Reckitt&Colman, a company from England, introduced its brand Airwich in the balance sheet, taking advantage that the legislation of the country allowed including new acquired brands as intangibles in the balance sheet. (Cheverton, 2004, p. 169). This trend continued in the next years and intangible assets owned by different companies starting to have a more relevant role in the value of companies. One of the turning point in the history of brand valuation took place in 1988, when the Rank Hovis McDougal Company (RHM) became the object of a hostile takeover from an Australian company, Goodman Fielder Wattie. RHM managed to convince its shareholder not to accept the competitor's offer, explaining that the offer didn't took into consideration the intangible assets of the company, meaning all the brands. Moreover, after rejecting the offer, RHM introduced in its balance sheet the value of all the brands, being the first time when a company introduced not only acquired brands but also its own brands. Although, at that time this practice received critics, because there wasn't a standard method to calculate brand's value, in 1989 the London Stock Exchange accepted the introduction of the price offered to shareholders, accepting in this wat the method proposed by RHM one year earlier. (Clifton, Simmons, 2003, p. 30). In this way, introduction of intangible assets in the financial results of companies, became a standard, recognized by the legislation of many companies. In 1999, Great Britain introduced financial standards FRS 10/11, and in 2002, USA introduced financial standard FASB 141/142., both of them allowing companies to introduce intangible assets in their balance sheet. The recognition of valuing companies also including brands led to diversification and development of many ways of valuing brands.

2. THE MAIN BRAND VALUATION METHODS

In the last years, many authors and consulting companies have proposed several valuation methods of brands as a response to the necessity of introducing their value in the financial statements of companies. The first brand valuation model was developed in 1988 John Murphy (Interbrand) together with London Business School for Rank Hovis McDougall (UK), this model being accepted by the largest accounting and audit companies, becoming the base for development of valuation and standards in this area. Currently, the most popular brand valuation methods fall into one the three fundamental approaches (Figure 1):

1. Income approach
2. Market approach
3. Cost approach

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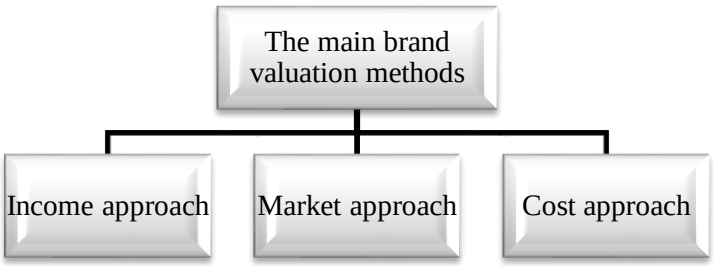

Figure 1: Methods used for valuing brands (develop by author, based on IVS, 2017)

2.1. Income approach

The principle of this approach is to estimate the value of the brand by reference to the present value of its future flows (income, cash flows, cost savings etc.), that could be obtained by a market participant, owner of that brand. This approach includes the following methods: excess earning, relief-from-royalty, premium profit, greenfield and distributor (Figure 2).

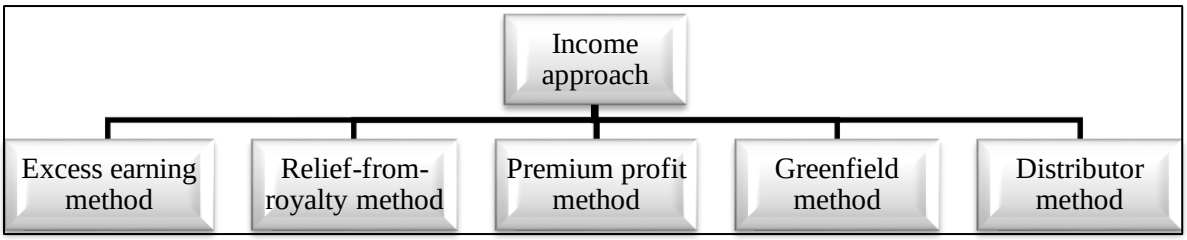

Figure 2: Income approach (develop by author, based on IVS, 2017)

The excess earning method estimates the value of a brand as the present value of the cash flows attributable to the brand after excluding the proportion of cash flows that can be attributed to other assets required to generate the cash flows. It is often used for valuations where there is a requirement for the acquirer to allocate the global price paid for a business between tangible assets and intangible assets.

The relief-from-royalty method implies estimating the future sales that are attributable to a brand and calculating a royalty rate that would be charged for the use of the brand (what the owner would have to pay for the use of the brand-assuming it were not already owned).
Relief-from-royalty method and excess earning method are the most commonly used brand valuation methods because they make a clear distinction between incomes generated by tangible assets and incomes generated by intangible assets.

The premium profit method indicates the value of brand by comparing two scenarios: one in which the business uses the brand asset and one in which the business does not use the brand (but all other factors are kept constant). The comparison of the two scenarios can be done in two ways: (a) calculating the value of the business under each scenario with the difference in the business values being the value of the brand, and (b) calculating, for each future period, the difference between the profits in the two scenarios. The present value of those amounts is then used to reach the value of the brand.

The greenfield method determines the value of the brand using cash flow projections that assume the only asset of the business at the valuation date is the brand. All other tangible and intangible assets must be bought, built or rented. This method is similar to the excess earnings method. However, the greenfield method assumes that the owner of the asset would have to

build, buy or rent the contributory assets, instead of subtracting contributory asset charges from the cash flow to reflect the contribution of contributory assets. The cost of a replacement asset of equivalent utility is used rather than a reproduction cost when building or buying the contributory assets.

The distributor method is used to value customer-related intangible assets, being a variation of the multi-period excess earnings method. The theory of the distributor method is that a business is composed of various functions are expected to generate profits associated with each function. As distributors generally only perform functions related to products distribution to customers, rather than intellectual property or manufacturing, the profit margins earned by distributors are used to estimate the excess earnings attributable to customer-related intangible assets.

2.2. Market approach

The principle of this approach is to determine the value of the brand by reference to the selling values of similar brands and the use of some different factors based ratios, such as the price – earning relationship. The market approach include the following methods: price to earnings ratio and turnover multiples (Figure 3).

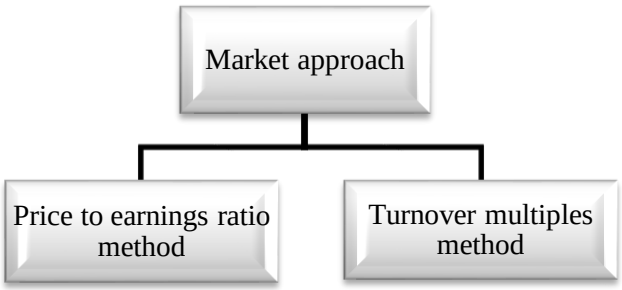

Figure 3: Market approach (develop by author, based on IVS, 2017)

The price to earnings (P/E) ratio method determines the brand's value by comparison to the price obtained in similar transactions, establishing the P/E ratio of that transaction and determining the final ratio for the actual valuation. So, if a similar brand has been purchased for a four times bigger price than its earnings - so, a 4/1 P/E ratio, the rating will have this multiple of 4 as a the starting point in the valuation process and it will increase or diminish based on the other brand's development factors.

The turnover multiples method studies similar transaction and determines a turnover multiple, which is the starting base for a final one, adjusted as accordingly to other brand's development factors. This method is a similar method to the first one, used often in the cases of companies have only one brand and where is intended the purchase of the whole company. The limit of this method is represented by the fact that the starting point of this valuation method is an artificial one. In many instances, the similar transactions from other periods are not exactly the same – there may be different market conditions (an expansive or contractive market) or different brands situations (a difference between the price paid for a developing brand and for a troubled one).

2.3. Cost approach

The Cost approach estimates the value of a brand by calculating the cost to recreating a replica, respectively determining the cost of replacing it with a brand with the same or similar service

capacity. Broadly, there are two cost approach methods: the creation costs method and the replacement value method (Figure 4).

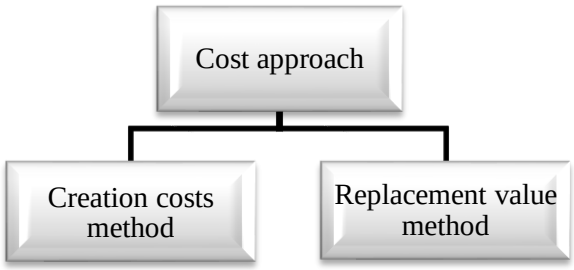

Figure 4: Cost approach (develop by author, based on IVS, 2017)

The creation costs method is based on estimating the amounts invested in the brand creation, plus, in the case of acquisition, the percentage demanded by the brand selling company.

The replacement value method involves estimating the investment needed to create a similar brand at the same level of position and market rating with the valuating brand.

Although quite attractive on the grounds that their basic factors (brand investment) are very affordable and controlled by the company, this valuation method is not as popular as the economic income approach, because the invested amounts are not necessarily an indicator for the brand's success. The major difficulty of this valuating method is the lack of a direct link between the financial investment and its added value. A big investment does not automatically guarantee a successful brand, which greatly reduces the efficiency of this approach.

3. BRAND FINANCE VALUATION METHOD – A CASE STUDY

The consulting firm Brand Finance calculates the brand's value using the income approach, relief-from-royalty method (this method is considered by Brand Finance as the most appropriate and accurate method of brand valuation) coupled with brand strength index (Figure 5).

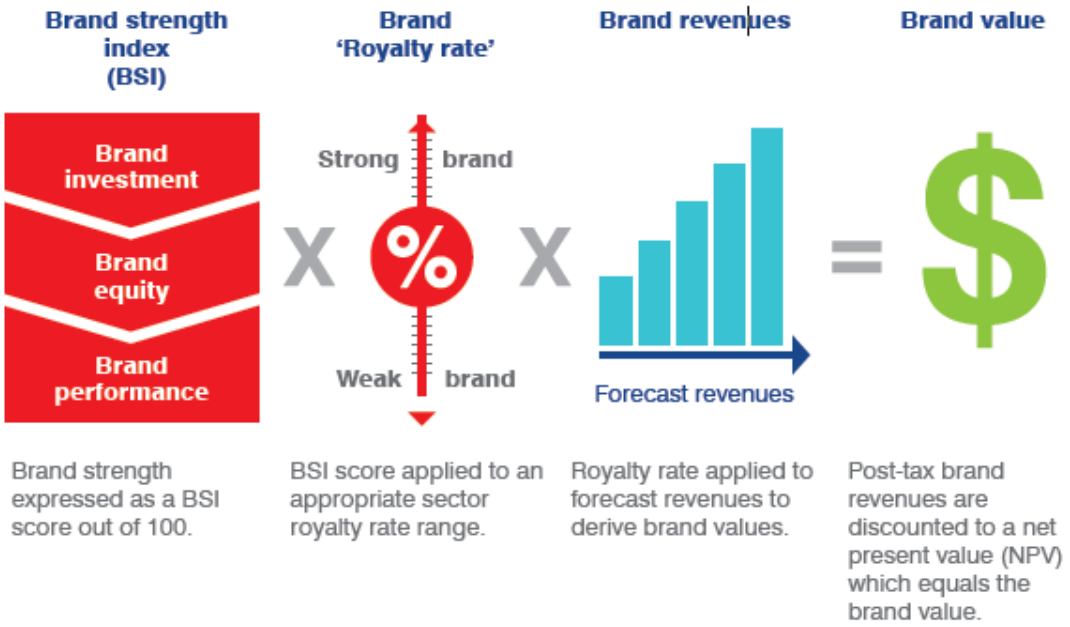

Figure 5: Brand Finance valuation process (Brand Finance, 2017, p. 6)

The steps in this process are as follows (Brand Finance, 2017, p. 6):

1. Determine brand strength on a scale of 0 to 100 based on emotional connection, financial performance and sustainability attributes.
2. Determine the royalty rate range for the respective brand sectors. This is done by reviewing comparable licensing agreements sourced and other online databases.
3. Calculate royalty rate. The brand strength score is applied to the royalty rate range to arrive at a royalty rate.
4. Determine brand specific revenues estimating a proportion of parent company revenues attributable to a specific brand.
5. Determine forecast brand specific revenues using a function of historic revenues, equity analyst forecasts and economic growth rates.
6. Apply the royalty rate to the forecast revenues to derive brand revenues.
7. Brand revenues are discounted post tax to a net present value which equals the brand value.

According to the latest Brand Finance Global 500 report, the most valuable brand in 2017 is Google, with a value of $ 109.5 billion, increasing by 24% compared to 2016. The Google is closely followed by the Apple, valued at $ 107.1 billion, falling 27% since early 2016, and the Amazon.com, worth $ 106.4 billion in 2017, a 53% increase compared to the same period last year. The three American tech giants are the only companies listed at more than 100 billion dollars. The 10 most valuable brands in 2017 is completed by AT & T (No. 4), Microsoft (No. 5), Samsung Group (No. 6), Verizon (No. 7), Walmart (No. 8), Facebook (No. 9) and ICBC (No. 10). The biggest riser is Facebook (No. 9, up 8 places compared to the previous year), which is worth 62 billion dollars, with an increase in value of 82%, followed by Amazon.com (+ 53%) and AT & T (+ 45%). The only decrease in the Top 10 is recorded by Apple, its monetary value fell from $145.9 billion in the previous year to $107.1 billion (-27%), losing the world's most valuable brand name in the past five years (Table 1).Eight of the top ten brands in the world are from the US. The Korean brand, Samsung (No. 6), is the next strongest non-US brand in the world, worth $ 66.2 billion. The next on the list is the Chinese bank ICBC (No. 10) with a value of $ 47.8 billion.

Table 1: Top 10 most valuable brands (Brand Finance, 2017, p. 19)

Rank 2017	Rank 2016	Brand name	Industry Group	Domicile	Value 2017 ($m)	Value 2016 ($m)	%
1	2	Google	Technology	US	109,470	88,173	24%
2	1	Apple	Technology	US	107,141	145,918	-27%
3	3	Amazon.com	Technology	US	106,396	69,642	53%
4	6	AT&T	Telecoms	US	87,016	59,904	45%
5	4	Microsoft	Technology	US	76,265	67,258	13%
6	7	Samsung Group	Conglomerate	S. Korea	66,219	58,619	13%
7	5	Verizon	Telecoms	US	65,875	63,116	4%
8	8	Walmart	Retail	US	62,211	53,657	16%
9	17	Facebook	Technology	US	61,998	34,002	82%
10	13	ICBC	Banks	China	47,832	36,334	32%

The Google's brand increase is an evidence of the brand strength, mainly due to its strong position on the search side, the company's core business, and its advertising income. Google's brand performance over the past 10 years is shown in Table 2.

Table 2: GOOGLE brand performance (Global 500, 2017, p.10 & Stock Analysis on Net)

Year	Brand value ($m)	Brand rating	Rank Global 500	Enterprise value ($m)	Brand value/Ent. Value (%)
2008	43,084	AAA	3	179,300	24,03%
2009	29,261	AAA	5	174,330	16,78%
2010	36,191	AAA+	5	160,080	22,61%
2011	44,294	AAA+	1	168,810	26,24%
2012	47,463	AAA+	2	205,910	23,05%
2013	52,132	AAA+	3	345,320	15,10%
2014	68,620	AAA+	3	300,095	22,87%
2015	76,683	AAA	3	402,352	19,06%
2016	88,173	AAA+	2	471,768	18,69%
2017	109,470	AAA+	1	720,661	15,19%

The Google brand value has grown significantly over the analyzed period, from $ 43 billion in 2008 to over $ 100 billion today. And brand strength has evolved from AAA in 2008 to AAA + in 2017, which means that this brand is exceptionally strong and well-managed. The enterprise value of the company (Alphabet, the company that owns Google) has also risen to $ 721 billion. This increase is mainly due to the growing interest in Google's advertising services. The brand value/enterprise value recorded a fluctuating trend during the analyzed period, being 15.19% at present (the lowest share of the period).The trend of the brand value, enterprise value and brand value/enterprise value is shown in Figure 6, Figure 7 and Figure 8.

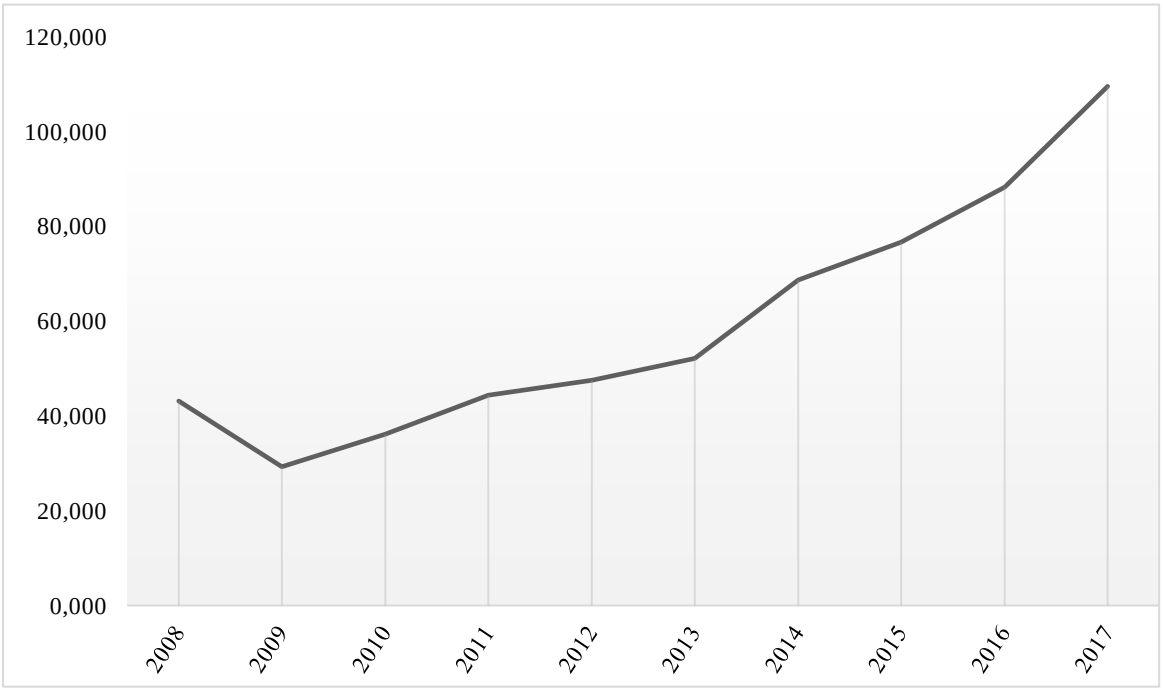

Figure 6: GOOGLE's brand value (Table 2)

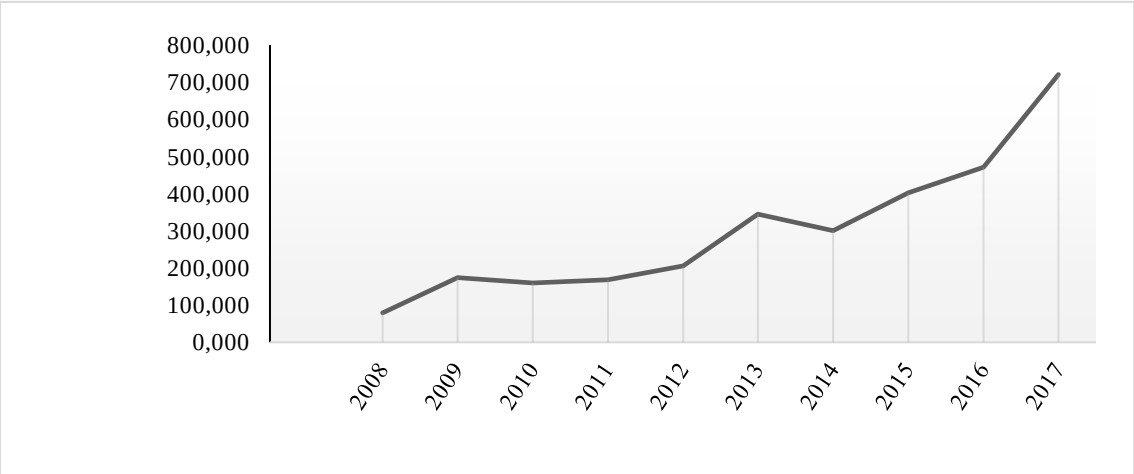

Figure 7: GOOGLE's enterprise value (Table 2)

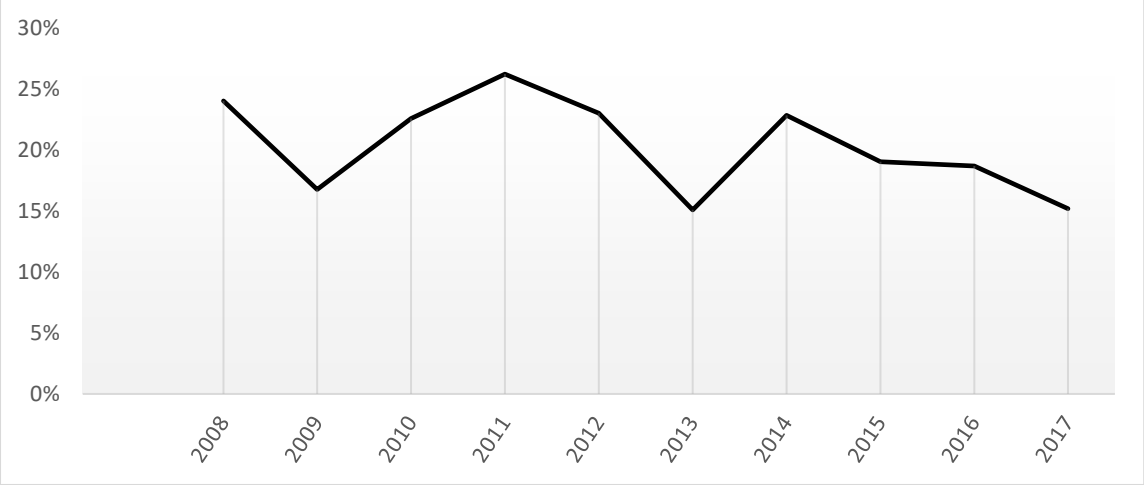

Figure 8: GOOGLE's brand value/enterprise value (Table 2)

The brand has a significant impact on the financial value of a business, beyond what can be sold or bought in a transaction, influencing a multitude of stakeholders: costumers/consumers, suppliers, employees, creditors, government authorities etc. (Table 3).

Table 3: The impact of a brand on the financial value of a business (develop by author)

Stakeholders	**Effects**	**Business value factors**	
Customers/ Consumers	Sales growth Price premium	+	Income
Suppliers	Lower purchase prices Favorable contractual terms Solid partnerships	-	Expenses
Employees	Decrease recruitment costs Decrease retention costs	-	Recruitment costs Training costs
Investors/ Creditors	Lowering credit costs Favorable credit conditions	-	Cost of capital Cost of credit
Government authorities	Invitations to government auctions	+	Income

4. BRAND AND INTELLECTUAL CAPITAL

The Swedish insurance firm Skandia has developed the most well-known model of intellectual capital. According to Skandia's model, intellectual capital was divided into two categories: human capital and structural capital (Figure 9).

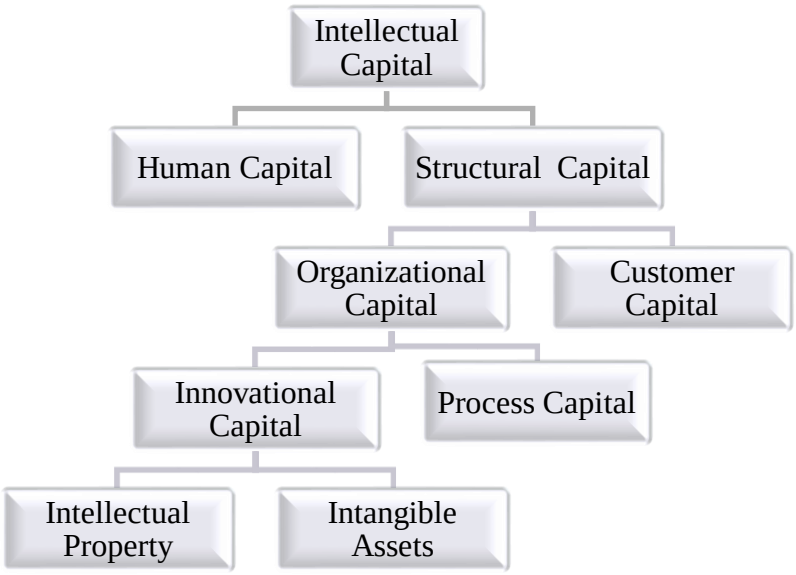

Figure 9: Skandia concept of intellectual capital (Edvinsson, 1997, p. 369)

Human capital can be described as the brains, skills, creativity, persistence, and dedication of the people who work for the company and structural capital encapsulating everything that remains in the company when the employees go home for the day. Structural capital may be divided into various sub-categories: organizational capital - respectively innovation capital (which includes intellectual property and intangible assets) and process capital, and customer capital, which is not tangible, but still contributes significantly to the company
The concept of intellectual capital is now largely recognized as:

- knowledge;
- knowledge and the product of this knowledge;
- resources and intangible assets not recognized on the balance sheet;
- total set of recognized or non-recognized resources and intangible assets (non-physical or non-monetary assets).

Each concept of intellectual capital will be analyzed from the perspective of its connection with the brand concept. Thus, when the concept of intellectual capital is limited to knowledge, it does not include brands. Intellectual capital includes brands when is understood as the knowledge and product of this knowledge. Intellectual capital includes internally developed brands, but not acquired brands when is understood to be intangible assets not recognized in financial statements. Intellectual capital it also includes brands when is understood as all non-physical or non-monetary assets (Figure 10).

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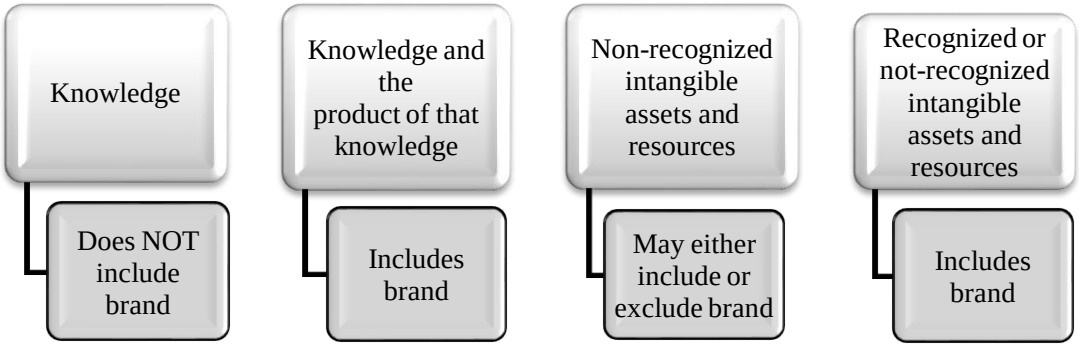

Figure 10: Relationship between intellectual capital and brand (develop by author)

The significance of intellectual capital derives from the fact that traditional accounting systems do not reflect reality for managers or investors and the valuation tools provided by them are becoming less relevant and less suitable for measuring the value of those companies which intangible assets hold a significant share. An example of intangible value in the enterprise value is provided by Brand GIFT™ (figure 11).

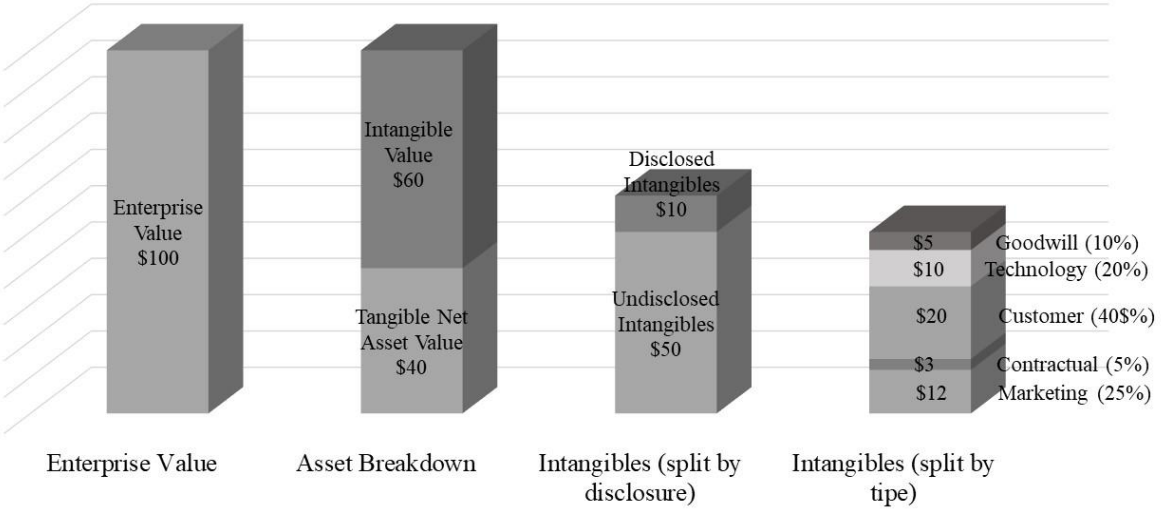

Figure 11: Illustrative Example of Specific Intangible Splits (Brand Finance GIFT™, 2017, p. 46)

5. CONSLUSION

The increasing important of brand on economic evolution of companies implies focusing in their value, which will determine major changes in the way in which the financial performance of these companies is valuated. Under the conditions that many countries require the incorporation the value of intangibles asset in the company's balance sheet and the brands are the main intangible asset for most companies, the valuation of the respective brands is very important and gets a clear financial value. According to the largest annual survey in this field, intangible assets represent about 60% of the value of companies. Tangible assets are no longer a mandatory condition or success - it is enough to look at the most valuable companies in the world such as Google, Apple or Facebook, whose value is almost entirely based on intangible assets. The development of brands and other intangible assets derives from the capitalization of creativity and innovation, components of intellectual capital, and represents an opportunity that cannot be ignored. Thus, the investment in intellectual capital is one of the most profitable investment and must represent a priority for any company on its way to financial performance.

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DISTINCTIVENESS AND QUALITY OF UNIVERSITY NORTH ON THE HIGHER EDUCATION MARKET IN THE REPUBLIC OF CROATIA

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ABSTRACT

University North is Croatia youngest university and as such is still in the process of becoming a distinctive and high quality higher education institution. In this paper an empirical research of the public perception of University North is conducted. Three main hypotheses were set and tested using one sample t – test. The results of the research confirmed all three hypotheses, leading to conclusion that University North is distinctive and high quality higher education institution. Also, study programmes on University North are in line with labour market needs. Another conclusion of the study is that University North is well connected with local economy.
Keywords: *communication campaign, University North, high quality, distinctive, t – test*

1. INTRODUCTION

In recent years, knowledge has become an increasingly important resource for economic development. The Republic of Croatia is facing the challenges of the global economy which, among other things, impose specific requirements with regard to the education system. Education quality assurance is one of the requirements it must fulfil. Given that the educational level of the population has an impact on economic growth, it is extremely important for the Republic of Croatia to increase the share of population with tertiary education. Over the last couple of years, the share of highly educated professionals in the Republic of Croatia has been increasing; however, Croatia still lags behind in this regard compared to other European countries. In order to increase the number of highly educated professionals, it is necessary to invest in the quality of education which would in turn increase awareness of the importance of education. Since University North is the youngest of eight public universities in the Republic of Croatia, it is crucial that it promotes its identity so that it can develop its distinctiveness both in Croatia and beyond.

2. HIGHER EDUCATION MARKET IN THE REPUBLIC OF CROATIA

The Act on Scientific Activity and Higher Education regulates the systems of scientific activity and higher education, which represent activities of special interest to the Republic of Croatia and are an integral part of international, European, scientific, artistic and education area. Higher education in the Republic of Croatia is based on academic freedom, academic autonomy and university autonomy in accordance with the Constitution, international treaties and the above-mentioned Act (ZZDVO, 2003). Higher education activities are carried out by higher education institutions, which include universities as well as faculties and art academies that form part of universities, polytechnics and colleges. They can be public or private.

Public higher education institutions are established by the Republic of Croatia, while private ones are founded based on the decision of the founder in accordance with the provisions of the Act on Scientific Activity and Higher Education pertaining to the establishment of institutions. Since 2005, the study programmes have been harmonized with the requirements of the Bologna Process with an aim to create the European Higher Education Area (Hunjet, 2009, p 251). Admission to study programmes is done on the basis of a call for applications announced by higher education institutions implementing the study programme no later than six months before the beginning of the classes. Higher education institutions establish the selection procedure which guarantees non-discrimination of applicants regardless of their race, colour, gender, language, religion or belief, political or any other opinion, ethnic or social origin, property, birth, social status, disability, sexual orientation or age. Higher education institutions also establish the selection criteria. Admission requirements include the applicant's GPA, type of education completed, entrance test scores or scores earned in other types of tests, as well as special knowledge, skills or abilities. Higher education institutions establish which secondary school programmes are required for enrolling in an undergraduate university study programme, integrated undergraduate and graduate university study programmes or professional study programme. A person is eligible for admission to a graduate university study programme or a specialist graduate professional study programme if he/she has completed a corresponding undergraduate study programme. Higher education institutions determine which undergraduate programmes are acceptable predecessors for a particular graduate study programme. Persons who have completed an undergraduate professional study programme are eligible for enrolment in a graduate university study programme in accordance with the general act of the university implementing that study programme. The selection criteria may include successful completion of competency testing conducted as part of an entrance test and/or bridging (differential) exams before enrolling in a study programme as a full-time or part-time student (Hunjet, Kozina, 2014, p 420). A person is eligible for enrolment in a postgraduate study programme if he/she has completed a corresponding graduate study programme and fulfilled any other requirements that a university may have imposed for enrolling in a postgraduate programme (ZZDVO, 2003).

3. STUDY PROGRAMMES AT HIGHER EDUCATION INSTITUTIONS

Higher education is delivered at higher education institutions through university and professional study programmes that have been aligned with those in the European Higher Education Area, taking into account the positive experiences of other higher education systems. University and professional study programmes must be designed considering the European Credit Transfer and Accumulation System (ECTS) according to which 60 ECTS credits represent the workload of a full year of study. ECTS credits are based on the workload students need in order to achieve the expected learning outcomes. One ECTS credit corresponds to 30 hours of work students typically need to complete all learning activities required to achieve the expected learning outcomes (Hunjet, Ostojić, Trbojević, 2010, p. 460).

3.1. University study programmes

University study programmes are designed to provide students with the competencies they need to work in science, art or higher education, the business sector, the public sector and society at large, as well as to apply and develop the scientific, artistic and professional knowledge. University education includes undergraduate university study programmes, graduate university study programmes and postgraduate study programmes. In addition, a university can also deliver integrated undergraduate and graduate university study programmes. Undergraduate university study programmes are organized and delivered at the university, while graduate and postgraduate study programmes can be delivered in collaboration with research institutes. Integrated undergraduate and graduate university study programme take five to six years to

complete and carry 300 ECTS credits. Graduate university study programmes take one to two years to complete and carry 60 to 120 ECTS credits. Graduate study programmes can last longer with the approval of the National Council for Science, Higher Education and Technological Development On completing an undergraduate and a graduate university study programme students will have earned a minimum of 300 ECTS credits (Horvat Novak, Hunjet, 2015, p 462). Postgraduate study programmes include postgraduate university study programmes and postgraduate specialist study programmes (ZZDVO, 2003). A person is eligible for enrolment in a postgraduate university, i.e. a doctoral study programme upon successful completion of a graduate university study programme. A postgraduate study programme takes a minimum of three years to complete (Hunjet, 2009, p 252). Postgraduate specialist study programmes take one to two years to complete. Upon completion of a postgraduate programme, students acquire the academic title of a specialist (spec.) in a specific field in accordance with the Act on Academic and Professional Titles and Academic Degrees. A university may lay down the procedure for ECTS credit allocation in the postgraduate university study programme by a general act (Zakon o akademskim i stručnim nazivima i akademskom stupnju).

3.2. Professional study programmes

Professional study programmes are delivered at colleges and polytechnics. Exceptionally, in accordance with the Act on Scientific Activity and Higher Education, with the approval of the National Council these study programmes can also be implemented at universities. Professional education includes abridged professional study programmes, undergraduate professional study programmes and specialist graduate professional study programmes (Hunjet, Ostojić, Trbojević, 2010, p. 461). Abridged professional study programmes take two to two and a half years to complete and carry 120 to 150 ECTS credits. Undergraduate professional study programmes normally take three years to complete; however, they may last for up to four years providing that an approval has been given by the National Council and that this is in accordance with internationally accepted standards (Horvat Novak, Hunjet, 2015, p 463). Specialist graduate professional study programmes take one or two years to complete and carry 60 or 120 ECTS credits. Professional study programmes provide students with an appropriate level of knowledge and skills that enable them to exercise a profession and start working immediately after completing their studies. On completing an undergraduate professional study programme followed by a specialist graduate programme students will have earned a minimum of 300 ECTS credits (ZZDVO, 2003).

4. QUALITY OF HIGHER EDUCATION IN THE REPUBLIC OF CROATIA

The quality of higher education may be considered in a wider or in a narrower sense. It may be regarded, in the broader sense, as the fulfilment of the demands and needs of users, as well as the fulfilment of goals, norms and standards. In the narrow sense, quality implies the alignment of the process and the results of the preparation of highly educated professionals with the needs, goals, norms and standards of the country, the employer and society as a whole. The quality of higher education is affected by a large number of requirements imposed by higher education beneficiaries, the Bologna Process and international standards, quality management system and the standards of operation of higher education institutions (Hunjet, Kuhar, 2012, p 373). To support further development of quality assurance, the European Association for Quality Assurance in Higher Education developed the Standards and Guidelines for Quality Assurance in the European Higher Education Area at the Bologna Conference (2003), with the aim of developing and improving the quality of academic programmes for students and other higher education beneficiaries (Hunjet, A., Ostojić, G., Trbojević, G. (2008), p 411). The Standards and Guidelines for Quality Assurance in the European Higher Education Area include:

- European Standards and Guidelines for Internal Quality Assurance within Higher Education Institutions
- European Standards and Guidelines for External Quality Assurance within Higher Education Institutions
- European Standards and Guidelines for External Quality Assurance Agencies (Zakon o osiguravanju kvalitete u znanosti i visokom obrazovanju).

Internal quality assurance refers to processes whereby the higher education institution itself guarantees that standards and the quality of education provided are being maintained and enhanced. The results of internal evaluation are typically the first to be reviewed during external evaluation. External Quality Assurance refers to processes whereby an independent institution guarantees that standards and the quality of education provided are being maintained and enhanced. The form of external quality assurance varies from one system to another and can include: institutional evaluations of different types, subject or programme evaluation, accreditation at subject, programme or institutional level, and combinations of these. By signing the Bologna Declaration, the Republic of Croatia has undertaken an obligation to implement the Standards and Guidelines for Quality Assurance in the European Higher Education Area, which means that higher education institutions should carry out internal quality assurance procedures and undergo regular external evaluations. External evaluation of higher education institutions is carried out by the Agency for Science and Higher Education. When evaluating higher education institutions, the general documents/programmes required for determining the scientific and teaching activities at the higher education institution as well as the quantitative and qualitative elements that describe its operation are considered (Hunjet, 2008, p 253). Internal assessment aims at evaluating the level of efficiency and performance of individual organisational units in maintaining academic quality and standards. During the internal evaluation process, a self-evaluation is carried out in which the adequacy of the content and effectiveness of the study programmes are determined in terms of achieving the expected outcomes, and the effectiveness of student evaluation methods is examined to measure the achievement of the expected outcomes of the study programme. In addition, it is necessary to examine the effectiveness of the teaching and learning processes to assess:

- the types and suitability of applied teaching methods,
- methods used to encourage student participation in class,
- the quality of teaching materials,
- teacher professional development strategies to improve the quality of teaching,
- team teaching effectiveness and
- student workload.

Internal evaluation also includes student surveys through which students' opinions are gathered on curriculums and the performance of individual teachers. The primary purpose of these surveys is to improve the quality of teaching and analyse the results in order to highlight examples of good practice (Zakon o osiguravanju kvalitete u znanosti i visokom obrazovanju). The Croatian higher education system has a long tradition that has developed primarily through the activities of eight public universities located in Zagreb, Rijeka, Split, Osijek, Pula, Zadar, Dubrovnik and Koprivnica. Since 2003, Croatia has been carrying out a comprehensive reform of the higher education system to align it with the developing needs of society, the European standards and the principles of the Bologna Process (Hunjet, Kozina, Milković, 2012, p 104). At present, Croatian education system adheres fully to the Bologna guidelines and Croatian higher education institutions are part of the European Higher Education Area. Linking higher education, science and research with the private sector is a process that takes place simultaneously with the reform of higher education (Hunjet, Kozina, Kurečić, 2015, 623). A

significant step in this process was made in 2003, when the National Foundation for Science, Higher Education and Technological Development was founded. The Foundation's mission was to transform Croatian society into a knowledge society, to promote the development of globally recognized research, and to create a knowledge-based economy. In 2010, the Foundation changed its name to the Croatian Foundation for Science and redefined its mission to focus on promoting science, higher education and technological development in the Republic of Croatia with the aim of ensuring economic growth and fostering employment (Hunjet, Kozina, 2014, p. 270) In order to define quality assurance reference frameworks, it is imperative to develop accountability and efficiency. Accountability requires the development of indicators for monitoring research outcomes and factors that contribute to social changes that lead to a better society for all. By promoting innovative structures, Croatia will see an increase in their contribution to modern society and the economy in roles beyond public sector research and education (Hunjet, Kozina, 2014, 190). Croatia has recognized the importance of adjusting the number and type of study programmes to social and economic needs, as well as the importance of developing research competencies, and in particular the need to develop personal and professional competencies. Relevant documents in this context include the Action Plan for the Mobility of Researchers 2011 – 2012 and the most recent Strategy for Education, Science and Technology (2014). (Hunjet, Geček, Mrvac, 2015, p 238). These documents propose the alignment of the number and types of study programmes with social and economic needs, and the adaptation of the content of the study programmes so that they contain clear learning outcomes (Zakon o Hrvatskom kvalifikacijskom okviru).

5. POSITIONING OF UNIVERSITY NORTH ON THE HIGHER EDUCATION MARKET IN THE REPUBLIC OF CROATIA

University North, which is based in Koprivnica, was founded in 2012 by the cities of Koprivnica and Varaždin. It operates through two university centres, one in Koprivnica and another in Varaždin. (Hunjet, Kozina, Milković, 2014, p 216).The University delivers 13 study programmes in technical, biomedical, social and artistic fields, of which nine are at an undergraduate and four at a graduate level, while the remaining two are doctoral studies. One is the International Joint Doctoral Study Programme in International Economic Relations and Management, delivered in collaboration with Juraj Dobrila University of Pula (Croatia), the University of Economics in Bratislava (Slovakia), and the University of Sopron (Hungary), with the administrative and organizational support of the University of Applied Sciences Burgenland (Eisenstadt, Austria). The second is the Doctoral Study Programme in Publishing and Media, delivered in collaboration with the Faculty of Humanities and Social Sciences of the University of Rijeka. The project for the establishment and development of a university in the north-western Croatia began in 2001 when an accredited private college was established, which carried out its activities at the Electromechanical School Varaždin. Successful development and an increasing number of students and teachers led in 2002 to the establishment of an independent institution under the name of the College of Electrical Engineering that delivered a study programme in Electrical Engineering with specialisations in Automation and Biomedical Electronics. In the course of 2003 and 2004, the institution introduced two new programmes - Mechanical Engineering and Multimedia, Design and Application, thereby fulfilling the conditions for re-registration as a polytechnic. In 2005, a new higher education institution under the name of the Polytechnic of Varaždin was established (Hunjet, Kozina, Milković, 2014, p 217). The institution continued to introduce new study programmes in technical sciences - Technical and Economic Logistics and Civil Engineering with specialisations in (Construction (Building) Engineering and Civil (Structural) Engineering, and a programme in Biomedicine and Health with a Professional Study Programme in Nursing. At the same time, the city of Koprivnica was also working on the development of higher education

and the establishment of a university. City governments in the north-western Croatia recognized the needs of the local population and started the initiative for the establishment of the first joint regional university in Croatia. In 2012, undergraduate university study programmes in Journalism and Media Design and a professional undergraduate study programme in Business and Management in the Media were launched in Koprivnica. At the same time, two graduate study programmes, one in Business Economics and one in Public Relations were launched in Varaždin. In 2013, based on the decision of the Senate of the Media University, the Polytechnic of Varaždin and the Media University merged into University North. On 29 May 2015, at its 17th session, the Croatian Parliament passed the Act on the Transfer of Founder's Rights over University North to the Republic of Croatia, which formally made University North the eighth public university in Croatia. This opened up a range of new opportunities for further development of the University, of the cities that had established it, but also of the whole region. This Act remedied the injustice suffered by the north of Croatia, the only macro-region that had not had a public university until then. (Hunjet, Kozina, Milković, 2014, p 217) The Mission of University North is to train competent professionals thereby meeting the needs of the real economy and the health care system in the north-western Croatia through quality delivery of professional and university studies according to the requirements of the Bologna Process. The Vision of University North is to be the leading educational, scientific, professional and socially accountable higher education institution providing education in the field of technical, economic, biomedical, health, biotechnical, and interdisciplinary sciences and artistic fields in the north-western Croatia. University North graduates are highly employable professionals due to the high level and diversity of the knowledge and competences acquired as well as their independence and creativity. University North fosters the principles of quality assurance in higher education, the principles of ethics, creativity, transparency, cooperation with other higher education institutions and, above all, good interpersonal relationships.

5.1. Image of the institution

University North is independent in its work which is based on ethical principles, academic freedom, academic self-governance and autonomy. It has provided the north-western Croatia with an opportunity to develop in accordance with its needs and has thus placed the region on an equal footing with other parts of Croatia. The University is capable of responding effectively to the needs of the economy as well as cultural and social needs, and fosters the development of the entire region and beyond. Owing to its perseverance and continuous efforts to increase the quality of its study programmes and staff, University North has become one of the leading universities in the region. The task undertaken by the University was highly demanding, but by successfully accomplishing it, it has transformed into a regional university of the macro-region of north-western Croatia.

5.2. Current state of the institution

University North encompasses 13 departments (scientific and educational constituent units) that deliver study programmes in the field of technical sciences (7 programmes), the field of social sciences (4 programmes), the field of biomedical sciences (1 programme), and the field of art (1 programme). They are as follows:

- Electrical Engineering
- Mechanical Engineering
- Multimedia, Design and Application
- Civil Engineering
- Technical and Economic Logistics
- Biomedical Sciences
- Journalism

- Business and Management in the Media
- Media Design
- Communicology and Public Relations
- Business Economics
- Packaging
- Sustainable Mobility.

There are currently about 3,000 full-time and part-time students from across Croatia and surrounding countries attending the University and more than 350 adequately qualified full-time and part-time teachers employed, all of whom have been appointed to teaching, research-teaching and artistic-teaching positions. The teacher-student ratio is 1:23. The main reason for the establishment of University North is the long-term increase in the number of highly educated population in the counties in which it operates, i.e. in the north-western Croatia (in line with the strategic documents of the Government of Croatia, primarily with the Network of Higher Education Institutions and Study Programmes in the Republic of Croatia and goal 1. Sustainable Quality of the Education System, as defined in the Strategic Plan of the Ministry of Science, Education and Sports for the period 2013-2015). The north-western Croatia with a population of more than 500,000 is the only macro-region which had not had an adequate higher education institution before University North was established. University North has already achieved commendable results and offers study programmes in the fields where professionals are in short supply. It is necessary to determine employment rates of graduates of the University because this information along with close cooperation with the local community is necessary for determining the direction in which the University should develop. The University also plans to increase enrolment quota for programmes training electrical and mechanical engineers as these are shortage professions in our region and beyond. The right to education and access to higher education is one of the fundamental human rights. However, not everyone has the opportunity to study in Zagreb or in other cities with public universities and this is one more reason why University North is of great importance for the north-western Croatia (Elaborat o osnivanju Sveučilišta Sjever, 2014).

5.3. The goal of the communication campaign of University North

The goal of the communication campaign of University North is to encourage and create the need for enrolment in undergraduate and graduate study programmes. The number of enrolled students in summer and winter enrolment terms is expected to reach the maximum of 835 students. University North has successfully delivered professional and graduate study programmes in the last two years and has registered a growth in student enrolment compared to the previous years. The University continually promotes, develops and applies scientific and professional knowledge; it has developed a lifelong learning programme; it maintains professional relationships and collaborates with similar institutions in the country and abroad. The main goal of University North is to raise education level in the north-western Croatia, to establish study programmes needed in this region, e.g. a study programme in food technology that is currently undergoing initial accreditation. There are plans to introduce new study programmes at all levels, from undergraduate to postgraduate. The University's dedication to excellence and continuous efforts to increase the quality of studying as well as staff by training and developing them, have set it on the right path to becoming one of the leading universities in this part of Europe.

5.4. Activity planning

Designing of promotional flyers, brochures and posters. A contract for the printing of promotional materials, i.e. flyers, posters and brochures will be awarded through an open tender

to the bidder offering the best terms. The brochures will contain information on all undergraduate, graduate and postgraduate study programmes offered by the University with a short description of the courses and a list of careers and occupations that graduates can pursue upon completion of these programmes. The flyers will have University North printed on them and a list of study programmes offered, while the posters will only have the name University North printed on them. The University has a press and funds for the printing will be secured. The brochures will be handed out at presentations of the University that take place in secondary schools. The posters will be displayed in public places and secondary schools in the north-western Croatia (i.e. the counties of Međimurje, Varaždin, Koprivnica-Križevci, Krapina-Zagorje, Bjelovar-Bilogora, Zagreb County and the City of Zagreb) where presentations will not be provided. The flyers will be distributed in secondary schools where there will be no presentations, at employment offices, post offices and popular coffee bars. Face-to-face presentations of the University at secondary schools and faculties that do not offer graduate study programmes. 4th grade students of secondary schools are informed about the University through brochures containing the list of all study programmes offered, their descriptions and career options. Presentations will be given only at schools in the north-western and western Croatia (48 schools in total). The presentations will be held by teachers of University North and final-year students (1 teacher, 1 student). The presenters will take turns after giving tree presentations. Presentations will be given on Wednesdays during the months of March, April, May, and June. Twelve schools will be visited per month, i.e. three each Wednesday. Both teachers and students giving presentations will be remunerated. During the months of December, January, and February, presentations will be given once a week at faculties delivering undergraduate study programmes (12 study programmes).

5.4.1. Internet advertising

A social media profile will be set up for University North on Facebook, Instagram, Twitter, Google+, LinkedIn, and YouTube because it is free and enables communication with a global audience. Funds will be allocated for the purpose of creating a 5-second ad showing the name of the University and study programmes, which will run on popular Croatian portals (24 sata.hr, indeks.hr, jutarnji.hr, vecernji.hr). The ad will be created by the students of Multimedia.

6. EMPIRICAL RESEARCH OF ATTITUDES ABOUT UNIVERSITY NORTH

In this chapter, empirical research of public perception of University North, is described. In the first section, research question and hypotheses are set. In the second section, research methodology and data are described. Data are analysed in the third section and results of hypotheses testing are discussed (Field, A. 2013).

6.1. Research questions and hypotheses

Main goal set by the authors of this paper is to research public perception about University North. Three main hypotheses are set in accordance to before mentioned research question: H1: University North is distinctive and high quality higher education institution.
H2: Study programmes on University North are in line with labour market needs.
H3: University North is well connected with local economy.

6.2. Research methods and data

Data that are used in this research are gathered through online questionnaire. Total of 720 questionnaires were gathered. Socio – demographic structure of the sample is presented in table 1. We can see that almost 50% of the sample is in the age group up to 25 years. Women make 60% of the sample and 52.5%, thus, more than half of the sample has a higher education. Large part (42%) of the sample comes from Varaždin county.

More than half of the sample (53,3%) are part time students of University North. We can see that the main source of information about University is the internet or another person, these two categories make for more than 90% of the source of information. The data that are gathered through questionnaire are analysed with excel and statistical package SPSS. One sample t – test is conducted to test the hypotheses that are set in the paper. The results of the test are presented in section 4.3.

Table 1: Socio – demographic characteristics of the sample

		%
Age	< 25	49,3
	25 - 40	37,6
	40 - 55	10,9
	> 55	1,7
Sex	Female	60,8
	Male	38,7
Education	Primary	,4
	Secondary	46,5
	Tertiary	52,5
County	Varaždin county	42,0
	City of Zagreb	11,0
	Međimurje county	13,7
	Zagreb county	8,6
	Krapinsko – zagorska county	6,5
	Koprivničko – križevačka county	9,7
	Other	8,5
What is your relation to University North	Full time student	21,5
	Part time student	53,3
	Alumni	4,9
	Drop out	,3
	Employee	11,4
	Know someone	5,3
	None of the above	3,3
How did you found out about University North	Internet	43,3
	TV	1,0
	Radio	,7
	Newspaper	3,5
	From someone	47,1
	Brochures	4,4

Source: output of SPSS

6.3. Results and discussion

In order to research the attitudes about University North participants were asked to evaluate four statements. The attitudes about a certain statement were measured with the Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The results are summarized in table 2 and in charts below.

Table following on the next page

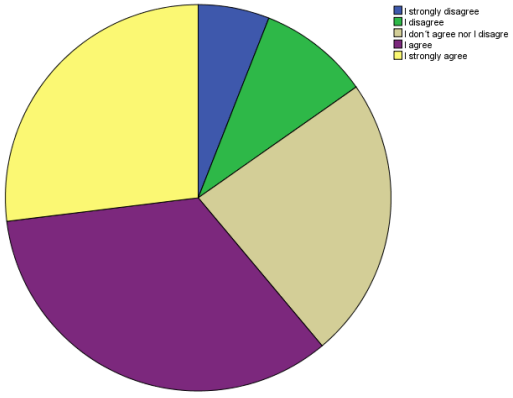
Table 2. Attitudes about University North

		%
Quality of University North is comparable with other Universities in Croatia	I strongly disagree	6,0
	I disagree	9,3
	I don't agree nor disagree	23,6
	I agree	34,2
	I strongly agree	26,9
Study programs match the labour market needs	I strongly disagree	4,5
	I disagree	9,2
	I don't agree nor disagree	21,7
	I agree	39,8
	I strongly agree	24,9
University north is distinctive on Croatian higher education market	I strongly disagree	3,9
	I disagree	15,0
	I don't agree nor disagree	41,8
	I agree	31,3
	I strongly agree	8,1
University North is well connected with local economy	I strongly disagree	7,9
	I disagree	11,7
	I don't agree nor disagree	33,2
	I agree	30,8
	I strongly agree	16,4

Source: output of SPSS

In chart 1. the evaluation of statement about quality is shown. As we can see more than 60% of the participants of the study agrees or strongly agrees with the statement that quality of University North is comparable with other universities in Croatia.

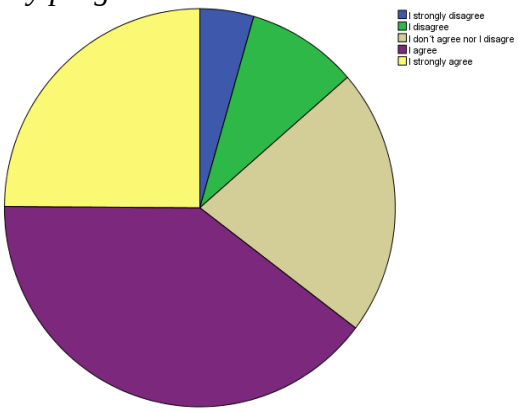
Chart 1. Quality of University North is comparable with other Universities in Croatia



Source: output of SPSS

In chart 2. the evaluation of statement about how well the study programmes of University North match the needs of the labour market is shown. As we can see more than 65% of the participants of the study agrees or strongly agrees with the statement that the study programmes match the needs of the labour market.

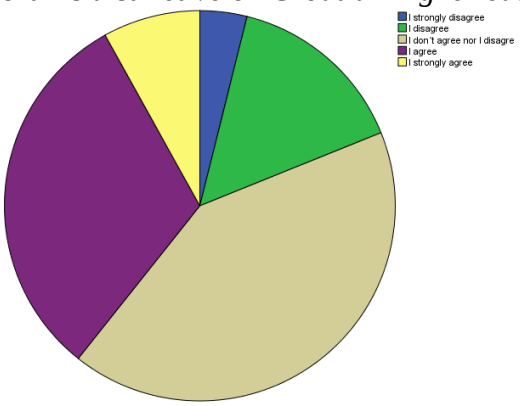
Chart 2. Study programs match the labour market needs



Source: output of SPSS

The participants of the study were asked to evaluate recognisability of the University North on the Croatian market of higher education. In chart 3. their evaluations are shown. Nearly 40% of the participants agrees or strongly agrees that University North is recognisable higher education institution in Croatia. Although this is a high percentage, there seems to be room for improvements when comparing to the results for other three statements.

Chart 3. University north is distinctive on Croatian higher education market

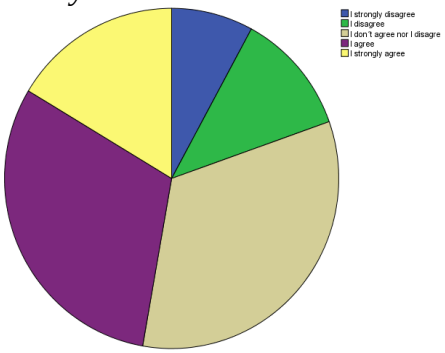


Source: output of SPSS

In chart 4. the evaluation of statement about how well is the University North connected with local economy is shown. As we can see more than 47% of the participants of the study agrees or strongly agrees with the statement that the University North is well connected with local economy.

Figure following on the next page

Chart 4. University North is well connected with local economy



Source: output of SPSS

In table 3. descriptive statistics for the four statements are shown. We can see number of observations, mean, standard deviations and standard error for mean. Mean values for all statements are between 3,25 and 3,71 with standard deviations ranging from 0,939 to 1,143, which means that values are centralized around mean value.

Table 3. Descriptive statistics

	N	Mean	Std. Deviation	Std. Error Mean
University North is comparable in quality with other Universities in Croatia	720	3,67	1,143	,043
Study programs are in accordance with labour market needs	719	3,71	1,074	,040
University north is distinctive on Croatian higher education market	720	3,25	,939	,035
University North is well connected with local economy	720	3,36	1,126	,042

Source: output of SPSS

To test the three hypotheses, we made in this paper, we conducted one sample t – test. The one-sample t-test is used to determine whether a sample comes from a population with a specific mean. This population mean is not always known, but is sometimes hypothesized. (Field, 2013) For every statement that we test we made two assumptions with hypothesized population mean $\mu=3$:

H_0: $\mu \leq 3$

H_1: $\mu > 3$

The sample has a statistically significant higher mean than 3 ($p < .05$) and, therefore, we can reject the null hypothesis and accept the alternative hypothesis. Thus, the results of the test indicate that public evaluates all four statements with agree or strongly agree. Based on the one sample t – test we can conclude that public perceives the University North as recognizable and high quality higher education institution. Also, public perception is that study programmes match the needs of labour market and that University is well connected to local economy. The hypotheses that we set in this paper are confirmed.

Table 4. One sample t – test results

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
University North is comparable in quality with other Universities in Croatia	15,680	719	,000	,668	,58	,75
Study programs are in accordance with labour market needs	17,844	718	,000	,715	,64	,79
University north is distinctive on Croatian higher education market	7,028	719	,000	,246	,18	,31
University North is well connected with local economy	8,603	719	,000	,361	,28	,44

Source: output of SPSS

7. CONCLUSION

The Croatian higher education system has a long tradition that has developed primarily through the activities of eight public universities located in Zagreb, Rijeka, Split, Osijek, Pula, Zadar, Dubrovnik and Koprivnica. Since 2003, Croatia has been carrying out a comprehensive reform of the higher education system to align it with the developing needs of society, the European standards and the principles of the Bologna Process. University North, which is based in Koprivnica, was founded in 2012 by the cities of Koprivnica and Varaždin. It operates through two university centres, one in Koprivnica and another in Varaždin. The University delivers 13 study programmes in technical, biomedical, social and artistic fields, of which nine are at an undergraduate and four at a graduate level, while the remaining two are doctoral studies. University North is Croatia youngest university and as such is still in the process of becoming a distinctive and high quality higher education institution. In this paper an empirical research of the public perception of University North is conducted. Three main hypotheses were set and tested using one sample t – test. The results of the research confirmed all three hypotheses, leading to conclusion that University North is distinctive and high quality higher education institution. Also, study programmes on University North are in line with labour market needs. Another conclusion of the study is that University North is well connected with local economy.

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FORMATION OF THE INDICATORS SYSTEM, CHARACTERIZING THE POPULATION SATISFACTION BY HEALTH CARE QUALITY IN THE FIELD OF COMPULSORY MEDICAL INSURANCE OF RUSSIA

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ABSTRACT

The aim of the research is to analyze the existing system of indicators that characterize the citizens' satisfaction with the accessibility and quality of medical care, as well as the public's awareness of the health care system possibilities and the rights of insured parties in the field of compulsory health insurance and its improvement. During the research, methods such as analysis, synthesis, abstraction, generalization, comparison and detail methods were used. Further adaptation of the research results is possible both in subsequent theoretical and methodological developments on this subject, and in practical activities during the surveys of insured parties by medical insurance organizations. The results of the research can also be used for scientific purposes as a material for subsequent studies of the conducting interviews specifics, as well as for methodological purposes on the lectures using a number of sociological disciplines. The novelty of the research consists in the analysis of the existing system of indicators and the formation on its basis of complex indicators system that characterizes the population's satisfaction with accessibility and quality of health care.

Keywords: *compulsory medical insurance, survey, two-level monitoring system for satisfaction of insured parties with quality and availability of medical care, indicators of satisfaction with quality and availability of medical care*

1. INTRODUCTION

Compulsory medical insurance (*OMS*) is an institution for the social population protection, affecting the interests of all citizens of Russia - the level of social, economic, legal and cultural development of society and the state directly depends on its indicators. Currently, the state is actively developing institutions for social population protection [3, 5, 7-9, 16], and therefore the functioning of the compulsory health insurance system is in the zone of increased attention of the government and the public - the population should be sure that the level of OMS will ensure a decent living standards in the event of possible social risks to a person's health. The mechanism of *OMS* system is constantly being improved in order to raise to a new qualitative level the provision of social guarantees for citizens. An important role in this process is given to informational support of ongoing activities and measures taken to improve the *OMS* system. In this context, the role and importance of opinions and requests studying of patients, their assessments of the quality of health care guarantees increases, because the effective operation of the health care facility requires knowledge about the needs of the consumer of health services, his satisfaction with the quality of provided care Many researchers agree with this postulate [4, 6, 15, 17]. An important role in this process is played by insurance medical organizations and the institute of insurance representatives established for them, whose tasks include informational and organizational support of the patient in the health care system. Health insurance organizations are obliged to conduct monitoring aimed at studying of insured parties satisfaction with the availability and quality of medical care, their awareness of the capabilities

of medical care system, as well as the rights in the field of compulsory health insurance. The study of the experience of carrying out sociological surveys with the participation of insurance medical organizations [10-14] shows that at present there is a practice of wide use of different methods and approaches to assessing the quality and availability of medical care. In the framework of surveys conducted by different insurance medical organizations, the analysis showed that there is no unique methodology for conducting surveys, there are different interpretations regarding to the object, the subject of the study, the evaluation criteria used, metrics and indicators of the quality and availability of medical services, the scales of satisfaction and accessibility of medical care. There is no single procedure for conducting surveys, selecting objects and units of observation: some organizations conduct sociological surveys using the method of face-to-face questioning while undergoing medical examination, others use correspondence surveys, applying methods of mailing, and others - they question by phone. Polls are widely used on the electronic questionnaire on the websites of insurance medical organizations. Such a wide range of used techniques and methods does not allow to lead the variety of conducted surveys to a single basis, to reveal a real picture of satisfaction with the quality and accessibility of the provision of medical care in the federal districts and in the Russian Federation as a whole. In fact, there is a situation where sociological surveys are purely local in nature. The findings of these studies can not be disseminated, not only to the broader general population of the insured, but the results of surveys obtained by different insurance medical organizations on similar issues can not be compared with each other. In addition, there is a situation where within the framework of one insurance medical organization, depending on the territorial branch, different questionnaires are used, different indicators characterizing the quality and availability of medical care, different scales of their evaluation. The reason for such a wide variety of used tools is deviation from the general methodology of conducting surveys, which does not allow making scientifically correct and scientifically sound conclusions. In this connection, the issue of developing common criteria and indicators characterizing the accessibility and quality of medical care, awareness of the possibilities of the system of rendering medical assistance and the rights of insured persons in the field of compulsory medical insurance is acute.

2. METHODOLOGY

In this research, scientific methods such as analysis and synthesis were widely used. They help not only to collect facts, but also to test them, systematize them, and also to reveal dependencies and to determine the causes and consequences of the processes under study. These methods of the empirical-theoretical group were used as universal ones. In addition, the method of abstraction, as well as the method of generalization, was used. A monographic method was also applied, in particular, the methods of comparison and detailing.

3. DEVELOPMENT OF THE INDICATORS SYSTEM CHARACTERIZING THE SATISFACTION OF THE POPULATION BY QUALITY OF MEDICAL CARE

The Federal Fund for Compulsory Medical Insurance (OMS Fund) provides for a two-level system for monitoring the satisfaction of the population with the quality of provided medical care. The first level of monitoring includes the collection of operational information on the satisfaction of the insured with quality and access to medical care and is carried out through quarterly sociological surveys on special questionnaires containing a minimum list of the most significant indicators. The second level of monitoring is the collection of detailed information on the satisfaction of the insured with quality and availability of medical care, as well as awareness of the possibilities of the medical care system and about the rights of insured parties in the field of compulsory medical insurance. For each level, the normative documents of the *OMS Fund* provide for a system of indicators of satisfaction, but it has certain shortcomings,

and therefore it needs to be improved. Despite the fact that monitoring of the second level, due to its deeper and more comprehensive assessment of the situation, involves using a slightly larger number of indicators, nevertheless, the key indicators are "cross-cutting" for the two levels of monitoring. In order to improve the quality and reliability of the primary information obtained during the sociological surveys of the population within the framework of the *OMS* system, it is proposed to make certain adjustments to the indicators for assessing the quality and medical care accessibility, raising awareness of the population about the capabilities of the medical care system and about the rights of the insured parties in the sphere of *OMS*, set out in the Guidelines. These changes will not fundamentally affect the essence of the whole indicators system, since they are rather aimed at clarifying certain indicators, empirical referents and categories of analysis. First of all, those that are difficult (or impossible) to capture and display in the course of surveys of patients whose level of competence, and accordingly the level of reliability of certain assessments is quite organic. Therefore, refinements and adjustments only concerned those indicators that, from the point of view of the respondents' ability to give them a correct and adequate assessment, are at an extremely low level of relevance of values (conformity of estimates to what is actually measured). A low level of conformity of estimates to the real state occurs due to the fact that a number of selected features are not observed directly, and they can be assessed only by experts. This also applies to those indicators that have a little connection with the quality and availability of medical care. The main indicators and their interpretation, modified in accordance with this logic, are listed below in tabular form (Table 1).

Table following on the next page

Table 1 - A system of indicators and variables that requires adjustments to improve the reliability and relevance of the results of a survey

The old version of indicators that need to be refined and revised	**The rationale for the need to adjust and refine indicators to eliminate possible systematic observation errors**	**New revision of the indicators after revision in order to increase the reliability and relevance of the studied variables**
Comfort of a medical organization: - a premise (the area, planning, a technical condition)	Indicator "satisfaction with technical condition, repair, area of premises" needs to be corrected. The rationale is not entirely relevant assessment of these parameters from the side of the respondent, when in reality he evaluates not so much these aspects of the premises (where it is difficult for him to judge competently about the real areas of the whole room, its technical condition, repairs and its quality) as quite different parameters - convenience, space, general condition of the premises.	Comfort of a medical organization: - Convenience, spaciousness, general condition of the premises.
The range of medical services provided by a medical organization: - provision of a medical organization with qualified personnel.	Indicator "provision of a medical organization with qualified personnel" needs to be corrected. The justification is not completely relevant assessment of this parameter on the part of the respondent, when in reality he estimates very different parameters - not so much the existing availability of qualified personnel, which it is difficult for him to judge competently, but many other parameters. First of all, when assessing the satisfaction of the given party with the activity of the medical institution, the patient most likely pays attention to the "accessibility", "availability" of personnel in the provision of medical care, their professionalism, experience and knowledge. And the "qualification" of the staff is assessed by the patient by the presence in the medical organization of experienced, highly professional, knowledgeable and attentive specialists of various profiles with whom he had to deal.	The range of medical services provided by a medical organization: - presence in the medical organization of experienced and knowledgeable specialists, highly professional medical personnel; - provision of medical care by experienced, well-trained specialists and medical personnel
Material and technical availability of the medical organization: - provision of modern medical equipment; - availability of medicines, tools, inventory	Both indicators need to be adjusted. Justification is not entirely relevant assessment of these parameters from the side of the respondent. In reality, he assesses not so much "availability" as "use", "provision", "accessibility" of modern equipment, medicines, tools when providing medical assistance." First and foremost, the respondent's satisfaction depends on how all this is used in the patient's interest when providing medical assistance.	Material and technical availability of the medical organization: - use, availability of modern medical equipment; - provision of medicines, use and accessibility of tools, inventory
Qualification of health workers: - satisfaction with the qualifications of doctors; - satisfaction with the qualification of paramedical personnel.	Both indicators need to be adjusted. Need to adjust both indicators. The rationale is not completely relevant assessment of the "qualification" parameter from the side of the respondent, when in reality he evaluates not so much the real qualification of the staff as other parameters - professionalism, experience, knowledge, and attentive attitude towards the patient	Professionalism of health workers: - satisfaction with attention from doctors, their professional experience, knowledge, skills; - satisfaction with attention from nurses, their professional experience, knowledge, skills.
Practical realization by insured parties of their rights:	There is no important indicator that reflects the violation of the rights of insured parties and which rights were violated.	Practical realization by insured parties of their rights: A new feature is introduced: "Have you violated your rights in the compulsory health insurance system over the past year?" And if "yes", what exactly

In addition to the above, it is proposed to introduce additional indicators characterizing the representation of the population about violations of their rights in providing free medical care in general rather than as a whole.

This innovation, reflecting specific violations, will allow, accordingly, to determine the extent of the prevalence of this type of violation and to approach the work on ensuring the implementation of the rights of insured persons more in line with the results of the survey. Let's list the given areas:

- Choice of medical organization
- Choosing an insurance company
- Choosing a doctor (with his consent)
- Getting full information about your health status
- Preservation of information about the state of your health, the fact of seeking medical help
- Rejection of medical intervention
- Receiving free medicines when seeking emergency and inpatient care
- Receiving free medical care both in the polyclinic and at home
- Receiving free rehabilitation
- Receiving free medical care outside the region in which the respondent resides
- Protecting your rights in the event of their violation

4. CONCLUSION

Taking into account some changes, additions and clarifications to the existing indicators system that was proposed earlier in the Guidelines, we consider it appropriate to monitor the satisfaction of insured patients with the quality and accessibility of medical care, as well as their awareness of the capabilities of the *OMS* system and the available rights, to accept and use an adjusted and supplemented system of indicators. To assess the availability and quality of care at all stages of monitoring, it is proposed to use the indicators presented in Table 2.

Table following on the next page

Table 2 - Indicators characterizing the population's satisfaction with accessibility and quality of health care

Monitoring levels	Indicators-criterias	Indicators
First and second level	**The comfort of a medical organization**	- convenient location of a medical organization - a premise (the area, a lay-out, a technical condition) - comfort of wards in hospitals - number of patients in 1 ward - sanitary conditions of premises - food quality in hospitals
Second level	**Convenience of the operating mode of the medical organization**	- work schedule of doctors and separate units in the medical organization - the possibility of obtaining background information on the work of individual specialists by phone - work organization of the register office - convenience of appointment to the doctor
First and second level	**Temporary costs of patients receiving health care**	- duration of waiting for medical reception "in front of the office" - duration of waiting reception after preliminary recording in an out-patient clinic institution - duration of waiting for a planned hospitalization in a hospital - duration of waiting for medical admission in the admission department during admission to hospital
Second level	**The spectrum of medical services provided by a medical organization**	-satisfaction with the complex of provided medical services; -the presence in the medical organization of experienced, highly professional, from the point of view of the patient, specialists
First and second level	**Material and technical availability of the medical organization**	- the application of modern medical equipment -accessibility for patients of necessary medicines, tools, inventory
Second level	**Interpersonal relations in the system "medical worker-patient"**	- the attitude of medical workers to patients; - communicability of doctors; - the implementation of the treatment taking into account the opinion of the patient; - the duration of the reception time;
First and second level		- Satisfaction with the work of doctors in general
Second level	**Профессионализм медицинских работников**	- Satisfaction with the professionalism of doctors; - Satisfaction with the professionalism of nurses.
First and second level	**Quality of care in the provision of medical care**	- Satisfaction with the quality of care in the provision of medical care in general; - Satisfaction with the quality of care in the provision of emergency medical care; - Satisfaction with the results of treatment (examination, rehabilitation).
Second level	**Timeliness of the provision of medical assistance**	- Timeliness of therapeutic care; - timeness of the assistance of a specialist doctor; - the possibility of receiving medical care at home.
Second level	**Continuity of medical care provided**	-prophylaxis of diseases, clinical examination
Second level	**Knowledge by the insured of their rights in the *OMS* system**	- an overall assessment of the level of awareness of the rights of the insured; -evaluation of awareness of individual specific rights of the insured; - sources of information about the rights of the insured.
Second level	**Practical realization of their rights to the insured:**	- the right to choose a medical organization; - the right to choose a doctor; - the right to receive free medical care throughout the territory of the Russian Federation; - receiving referrals to other medical organizations for consultations, surveys; - paid services in medical organizations and the availability of shadow payments.
First and second level	**Availability of different types of medical services**	- availability of necessary laboratory tests / analyzes - availability of diagnostic studies (ECG, ultrasound, etc.) - accessibility of therapeutic care from therapists - accessibility of medical assistance of doctors

This system of indicators and variables, namely, its completeness, complexity and sufficiency for making well-founded assessments, does not go into any comparison with all other variable signs and indicators used for this purpose.

It differs in a positive way from all other systems of indicators currently used by medical insurance organizations, both within the framework of the existing Methodological Recommendations, and also on an initiative basis by its complexity, systemic nature, and a high degree of unification of the existing variables.

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QUALITATIVE RESEARCH IN ENTREPRENEURSHIP: LEARNING HOW TO PLAY THE GAME

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ABSTRACT

The main objective of this study is to look into the degree to which Croatian researchers of entrepreneurship tend to apply qualitative methods, as well as to check the quality and coherence of the used methodological designs. Therefore, we conducted a content analysis of the existing scientific and professional articles with topics on entrepreneurship, that were available in the Croatian scientific database. The first step comprised searching the database and selecting the relevant economic journals. Next, we selected the papers with focus on entrepreneurship topics, whose methodological frameworks employed a qualitative or mixed approach. The analysis confirmed major underrepresentation of qualitative methods in Croatian entrepreneurial research. Even those authors that utilize qualitative approach are inclined to apply their methods in an incomplete and fragmentary way. It uncovers a certain lack of awareness of the significance of correct and transparent application of qualitative methodological frameworks.

Keywords: *entrepreneurship research, methodology, qualitative research methods, meta-research*

1. INTRODUCTION

Research in the field of economics, as well as the entrepreneurship, has traditionally found its starting point in positivist orientation, which in the methodological sense predominantly relies on quantitative research methods. This approach has often been referred to as "the only accurate view of science" (Guba and Lincoln, 1994), and everything else has been attributed to the domain of imagination and esoteric of anecdotal, impressionist and biased "quasi-scientists" (Charmaz, 2006). However, recent empiricism in the field of entrepreneurship points to the progressive acceptance of alternative paradigmatic frameworks inclined towards mixed or qualitative methodology. Nevertheless, there is still just a minority of researchers who dare to oppose to the natural aspiration of fitting into the mainstream research worldview and engage in a struggle for legitimacy of the relativistic reality concept (Drakopoulou-Dodd et al., 2014). Such endeavours are not usually directed at the disavowal or understating of quantitative methods. On the contrary, they ask for methodological pluralism, which instead of limiting, enriches the comprehension of socially constructed phenomena in entrepreneurship. The process of embedding these efforts into research practice is long lasting and difficult, as evidenced by the fact that quantitative methods (and the survey questionnaire as the most frequent supporting data-gathering technique) are still prevailing in recent entrepreneurial research due to being seen as superior and "inerrant" research tool (McDonald et al., 2015). Hence, we assume that the "small" Croatian scientific community is still far from understanding

the advantages of methodological pluralism for entrepreneurship research. With that assumption, we look into the degree to which Croatian researchers of entrepreneurship tend to apply qualitative methods to check the quality and coherence of the used methodological designs. In order to examine these research questions, we conducted a content analysis (Krippendorff, 2004) of the existing scientific and professional articles with topics on entrepreneurship, that were available in the Croatian scientific database Hrčak. The first step comprised searching the database and selecting the relevant economic journals. In the next step, we selected the papers with focus on entrepreneurship topics. All the identified articles were reviewed and analysed based on reading their abstracts and keyword searches to recognize the applied methodological frameworks and related data collection techniques. After the analysis of the relative and absolute representation of certain types of methodological frameworks, the articles with qualitative or mixed approaches were qualitatively analysed with particular emphasis on quality and comprehensiveness of the description of their methodological frameworks. Specifically, we examined the authors' tendency to indicate their ontological and epistemological positions in the conducted research, the tendency to unambiguously indicate the selected research method and the degree of transparency regarding the method of data analysis. Additionally, for each article we analysed the suitability of the chosen method with regard to the research problem and the authors' propensity to indicate the reason for the application of the particular method and (where possible) we evaluated the quality of the data collection and analysis processes.

2. RESEARCH QUESTIONS AND MEODOLOGICAL RESEARCH FRAMEWORK

In line with the above, the following research questions are examined:

1. Which methodological approaches and data collection techniques prevail in recent entrepreneurial research published in the most significant and/or most visited journals in the field of social sciences indexed in the Croatian scientific database Hrcak?
2. What is the quality of the methodological frameworks based on qualitative methods in recent entrepreneurial research published in the most significant and / or most visited journals in the field of social sciences indexed in the Croatian Hrcak scientific base?

A content analysis (Krippendorff, 2004) of the relevant scientific and professional articles published in the Croatian scientific database *Hrčak* was conducted in order to find answers to the stated research questions. The research began with an overview of all the current social sciences journals indexed in *Hrčak* and selecting the most relevant ones that were then scrutinized in detail. Selection of the journals is based on the combination of the following three criteria: (1) articles published in the journal partly or predominantly belong to the field of economics; (2) according to the total visits at *Hrčak* over the last ten years, the journal is among the 50% of the most visited journals in the field of social sciences; (3) the journal is indexed in at least one of the four scientific bases relevant for the entrepreneurship researchers (Current Contents, Web of Science, Scopus and EconLit). Thereby, it was decided that the articles from the journal would be considered if it meets the first criterion and at least one of the remaining two criteria. Accordingly, we finally selected and included a total of seventeen scientific and professional journals in the field of social sciences (Table 1).

Table following on the next page

Table 1. Overview of selected scientific and professional journals with data on the relevant criteria for their selection (authors' analysis)

No.	The name of the journal	Total visits on *Hrcak* (2007.-2017.)	Indexing*
1	Društvena istraživanja: časopis za opća društvena pitanja	2,491,857	Current Contents, Web of Science, Scopus, EconLit
2	Ekonomski pregled	2,078,031	Scopus, EconLit
3	Economic research - Ekonomska istraživanja	765,028	Web of Science, Scopus, EconLit
4	Zbornik Ekonomskog fakulteta Zagreb	722,083	EconLit
5	Ekonomska misao i praksa	705,470	EconLit
6	Privredna kretanja i ekonomska politika	569,184	Scopus, EconLit
7	Ekonomski vjesnik: Review of Contemporary Entrepreneurship, Business, and Economic Issues	492,346	Web of Science, EconLit
8	Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu	442,121	Scopus, EconLit
9	Turizam: međunarodni znanstveno-stručni časopis	428,673	Web of Science, Scopus, EconLit
10	Management: Journal of Contemporary Management Issues	343,821	Web of Science, Scopus, EconLit
11	Tranzicija	320,346	
12	Market-Tržište	314,760	Web of Science, Scopus, EconLit
13	Financial theory and practice	305,085	Web of Science, Scopus, EconLit
14	Poslovna izvrsnost: znanstveni časopis za promicanje kulture kvalitete i poslovne izvrsnosti	273,864	EconLit
15	Praktični menadžment: stručni časopis za teoriju i praksu menadžmenta	269,143	-
16	Zagreb International Review of Economics & Business	181,296	Web of Science, EconLit
17	Croatian Economic Survey	163,130	Scopus, EconLit

** The following scientific bases have been considered: Current Contents, Web of Science, Scopus, EconLit.*

Since the research goals are related to the analysis of recent scientific and professional articles, after selecting relevant journals, we defined that the analysis will comprise articles published over the last five years. More precisely, all the volumes and issues of the selected seventeen journals published in the *Hrčak* scientific database were published in the period from 1st January 2012 to 10th September 2017. Consequently, the population from which a sample of scientific and professional articles was taken for an analysis implies a total of 2,462 different categorization articles. From the defined population we selected a sample of scientific and professional articles using a strategy of meaningful sampling[1] (Patton, 2002). Specifically, the sample was formed by using the criteria of a dominant thematic orientation, where the

[1] Purposeful sampling involves a sample design strategy typical for a qualitative research approach, based on sample formation by choice and selection of "information rich" analysis units. Therefore, the intention of the researcher is not to generalize the results of the sample survey on the population, but to deeply examine the research phenomenon. Criterion sampling is a kind of purposeful sampling in which the selection of units is guided by predefined criteria relevant to the objectives of a particular research (Patton, 2002).

identification of the works included in the sample was performed by reviewing the title of each of the 2,462 articles and by identifying the ones whose contents are partially or predominantly related to the field of entrepreneurship[2]. Such an approach resulted in a sample of 129 scientific and professional articles from the field of entrepreneurship. For the purpose of discerning articles derived from empirical research and their categorization regarding the applied methodological approach (McDonald et al., 2015), the analysis began by reading abstracts and examining the overall content of the total sample of scientific and professional articles. Thus, each article was classified into one of two categories (conceptual article or empirical article), after which the empirical articles were further segmented into three sub-categories (empirical articles based on quantitative methodological approach, empirical articles based on qualitative methodological approach, or empirical articles based on mixed methodological approach). Data on such selected scientific and professional papers were analyzed by descriptive statistics methods and sorted, filtered, and graphically processed using Microsoft Excel spreadsheet tools. The quest for an answer to the second research question in the second part of the analysis required a separate focus on the articles selected in which we identified a qualitative or mixed methodological framework. More precisely, articles previously categorized into sub-categories of empirical works based on a qualitative and mixed methodological approach were subject to a qualitative analysis of the content, which implied a thorough reading of each article, searching for keywords, and recording researchers' observations, with the aim of a comprehensive description of the observed phenomena and understanding of the meaning hidden in empirical structure (Forman and Damschroder, 2008). This analysis identified the dominant thematic orientation of the individual article and recognized the applied qualitative research method. Furthermore, we examined the researcher's tendency to indicate the ontological and epistemological position and their tendency to explicitly indicate the chosen method and the justification for its application. Finally, the reviewed articles were also examined for the tendency and the scope of the description of the implemented data collection and analysis procedures and, when applicable, the tendency to provide additional information related to the methodological framework (such as information on the criteria for the evaluation of the results of the research and on the procedures for ethical issues relevant for the conducted research). As for the ethical aspects of this research, it should be emphasized that during the analysis of empirical material the author's anonymity and the confidentiality of the data related to a particular articles in a sample (such as the title, keywords and content) are retained. Nevertheless, eighteen papers that were identified to apply the qualitative or mixed methodological framework have undergone a more thorough analysis, including an indication of their thematic orientation. Bearing in mind the above, the non-disclose of the title of a particular article, and thus the identity of the author, is not entirely assured.

3. RESEARCH RESULTS

3.1. Representation of some types of methodological frameworks and data collection techniques in entrepreneurship research in Croatia

As already mentioned, the search of all the volumes and issues of the selected seventeen scientific and professional journals published in the period from January 2012 to September 2017 showed that the research population has a total of 2,462 articles of different categorization and thematic areas. A sample of 129 articles (or 5.2%) was created from the population of the articles by the purposeful sampling methodology, considering the thematic orientation entirely or predominantly related to the field of entrepreneurship. As a preliminary observation, significant differences in the absolute and relative representation of articles from the field of entrepreneurship within the chosen journal set were notable (Figure 1).

[2] Identification, i.e. recognition of articles that are wholly or partly related to the area of entrepreneurship, is based on the researcher's assessment.

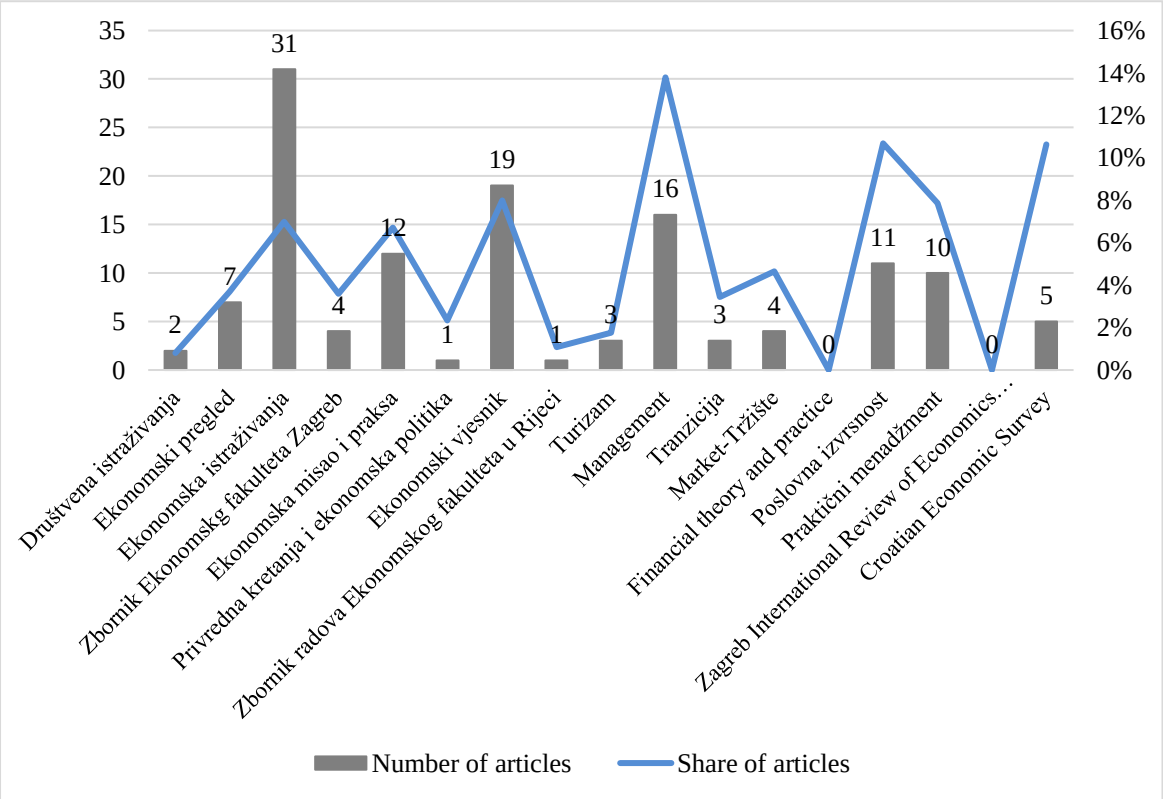

Figure 1. Absolute and relative representation of article from the field of entrepreneurship in selected seventeen journals for the period January 2012 - September 2017 (author's work)

For example, within the period under review in two reviewed journals (Financial theory and practice and the Zagreb International Review of Economics & Business), no work has been found in the field of entrepreneurship, while the only such work published in the journal Privredna kretanja i ekonomska politika does not refer to the article, but to the book review. On the other hand, the high absolute and relative representation of articles on entrepreneurship in the total published works during the observed period is noted in the journals Management: Journal of Contemporary Management Issues (16 articles or 13.8%), Poslovna izvrsnost: znanstveni časopis za promicanje kulture kvalitete i poslovne izvrsnosti (11 articles or 10.7%), Croatian Economic Survey (5 articles or 10.6%), Ekonomski vjesnik: Review of Contemporary Entrepreneurship, Business and Economic Issues (19 articles or 8.0%), Praktični menadžment (10 articles or 7.9%), and Economic research - Ekonomska istraživanja (31 article or 7.0%). The analysis of scientific and professional materials within the sample of articles from the field of entrepreneurship showed that 19 articles on entrepreneurship (or 14.7%) were conceptual material (book reviews, critical reviews, review articles based on findings of previous research, articles based on existing findings presenting conceptual models for future empirical research etc.), while 110 articles (or 85.3%) were founded on empirical research, regardless of whether they were officially categorized as original scientific papers, preliminary communication or review papers. It is important to note that such a relative oversaturation of empirical material is in line with findings of related previous research carried out using samples of different types of scientific and professional entrepreneurial articles. For example, McDonald et al. (2015) in a sample of 3,749 works from the field of entrepreneurship published in the five most internationally influential entrepreneurial journals, find the 81.0% representation of empirical articles, and similarly Ritchie and Lam's (2006) study reveals the 84.3% share of empirical articles in the sample of 185 conference papers.

In addition, as shown in Table 2, it is expected that a more detailed examination of the structure of the articles categorized as empirical would reveal the apparent dominance of quantitative research approaches in entrepreneurship research (McElwee and Atherton, 2005; Smith et al., 2013; Drakopoulou-Dodd et al., 2014). Thus, research based on the quantitative methodological approach comprised 71.3% of the articles included in the sample which makes 83.6% of all empirical articles. Since only two articles were categorized as mixed methodology empirical articles, qualitative empirical articles in the total sample represented only 12.4% (or 14.5% of the observed empirical articles).

Description	Number and share of articles
Total entrepreneurship articles published in selected journals	**129 (100.0%)**
Number of conceptual articles	19 (14.7%)
Number of empirical articles	110 (85.3%)
- thereof quantitative methodology	92 (71.3%)
- thereof qualitative methodology	16 (12.4%)
- thereof mixed methodology	2 (1.6%)

Table 2. Overview of entrepreneurship articles categories from selected seventeen journals for the period January 2012 - September 2017 (author's work)

More interesting is, however, an insight into the structure of different types of entrepreneurship articles with an emphasis on observing their representation in each of the seventeen analyses of journals covered (Figure 2). For example, in Društvena istraživanja, the only magazine indexed in the Current Contents database, only two entrepreneurship articles were published in the observed period, but both based on a qualitative methodological approach. A significant proportion of qualitative methods based articles was also inherent in the renowned journal Turizam (indexed by the Web of Science (ESCI)), the Praktični menadžment journal, and the EconLit indexed Ekonomski vjesnik. On the other hand, among the seventeen observed periodicals, in ten of them no entrepreneurship articles based on qualitative methods were found, and a methodological framework based on a mixed approach has been identified in the articles in two journals. Considering the share of entrepreneurship articles in the total number of published articles, qualitative methods based articles are heavily underrepresented in the research published in the journals Management: Journal of Contemporary Management Issues and Economic research - Ekonomska istraživanja.

Figure following on the next page

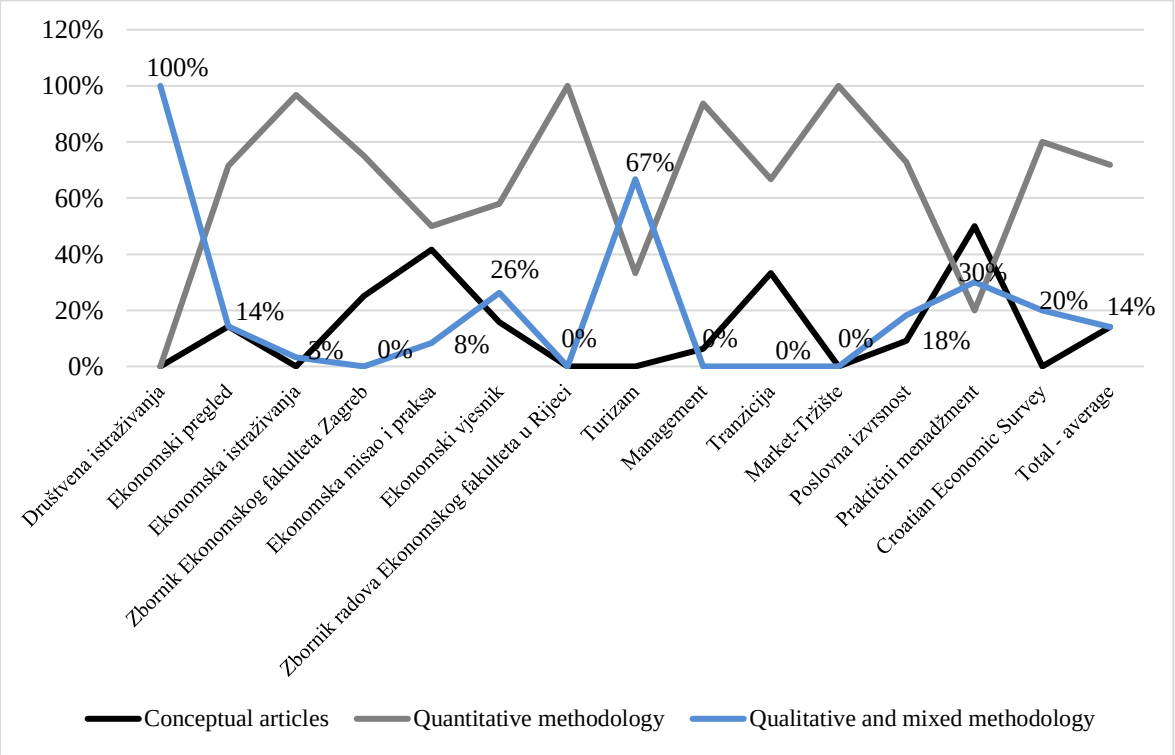

Figure 2. Relative representation (%) of types of entrepreneurship articles in the selected seventeen journals for the period January 2012 - September 2017 (author's work)[3]

As far as the sources of data and techniques for collecting them are concerned, as we assumed, for the scientists in the field of entrepreneurship, the survey questionnaire is by far the "most popular" research tool (McDonald et al., 2015). These is clearly reflected in the data in Table 3 showing the representation of some data collection techniques and data sources in all 110 empirical articles from the sample.

Table 3. Data collection techniques and data sources in entrepreneurship articles in the selected seventeen journals for the period January 2012 - September 2017 (author's work)

Techniques of data collection and data sources	**Number and share of articles***
Total empirical entrepreneurship articles published in selected journals	**110 (100.0%)**
Quantitative primary data - survey questionnaire	73 (66.4%)
Quantitative secondary data (e.g. BEEPS, GEM etc.)	21 (19.1%)
Primary data - a semi-structured or unstructured interview	9 (8.2%)
Qualitative secondary data from a variety of sources (e.g. business documentation, legislation, literary discourse, newspaper articles, etc.)	7 (6.3%)

** In the case of using of more different techniques in an article, we have taken into account a technique that has been explicitly stated as the main mean of data collection.*

[3] The graph does not show data for the journals *Financial theory and practice*, the *Zagreb International Review of Economics & Business*, and *Economic Trends and Economic Policy*, as there are no scientific and professional entrepreneurship articles found in them, as mentioned above.

The survey questionnaire was represented as the main (and except for a few articles, the only) data collection technique in as many as 66.4% of all empirical studies considered. Next follows the research based on quantitative secondary data (such as Global Entrepreneurship Monitor data, Eurostat, Business Environment and Enterprise Performance Surveys and others) with a share of 19.1%. Such data in the analysed papers were predominantly presented in the form of their source and are processed by descriptive and/or inferential statistics. On the other hand, techniques characterized by qualitative methodological approach such as semi-structured and in-depth interviews (with or without observation) in the total number of empirical research were represented by only 8.2%, while other sources and techniques, also characteristic for qualitative research, appeared in only 6.3% of the sample of 110 empirical articles. When interview-based data is concerned, in the observed studies interview was a part of the case study methodological frameworks, or it wasn't presented in the article as a data collection technique, but as a qualitative method itself. The above findings are in agreement with a large number of previous studies conducted for different time periods, various sizes and characteristics of samples and types of articles covered by the sample. Thus, prior studies indicate that the application of the survey questionnaire to the entrepreneurial scientific community for many years is characteristic of most empirical research of different thematic frameworks, regardless of whether they are published in journals or in the proceedings of various international conferences (Aldrich and Baker, 1997; Chandler and Lyon, 2001; Mullen et al., 2009; McDonald et al., 2015). However, it is important to point out that research based on data relating to extremely long periods of time such as those for a period of twenty-eight years (1985 to 2013), conducted by McDonald and others. (2015) suggests a trend, albeit a mild, rather obvious reduction in the share of quantitative methods in entrepreneurship research in favour of the qualitative methods. The causes of such trends should be sought not only in the promotion of methodological pluralism but also in the quality improvement of qualitative research on entrepreneurship. In this context, the focus is on a second research question related to the evaluation of the methodological frameworks of those articles in which there was previously identified qualitative or mixed methods approach.

3.2. Evaluation of methodological frameworks based on qualitative and mixed methods in entrepreneurship research in Croatia

As later shown in Table 4, based on the first phase of the analysis, it was found that the sample of scientific and professional articles contained a total of sixteen works based on qualitative and two articles based on a mixed research approach. Selected articles were of different thematic orientations, mainly for the study and/or the in-depth analysis of socially and culturally constructed entrepreneurial phenomena (such as examining entrepreneurship leadership styles, entrepreneurial climate analysis, entrepreneurial practices shaped by the influence of organizational culture etc.). It is also interesting that even five of the studies were examining somewhat subtle categories of entrepreneurship (such as women entrepreneurship and social entrepreneurship). Furthermore, in the observed set of qualitative or mixed research based articles, we find poorly expressed reflexivity of the researchers. In other words, in no article have we found the explicit presentation of the dominant paradigmatic framework, as well as the ontological and epistemological position of the researcher. However, the expressed consciousness of scientists on their own ideological worldview in the process of carrying out research and interpretation of the results was observed in five articles. Thus, in these papers it was possible to evaluate the paradigmatic basis of the researcher, which was carried out by using the paradigm classification proposed by Guba and Lincoln (1994). Consequently, it was found that the two studies relied on critical theories, one of them being predominantly constructivist orientation while the remaining two were based on post-positivist perception of the investigated reality. As expected, the latter in the methodological sense rely on a mixed

research approach, whereas one of them proclaims that the qualitative part of the research only supports the quantitative method. When it comes to the representation of some types of qualitative methods, the most popular is certainly case study, identified or declared in as many as nine of the considered articles. Case study is followed by the narrative method identified in three papers. Furthermore, it is important to point out that in three articles the authors declare that the interviews were a qualitative method, which indicates a lack of knowledge of the distinction between qualitative methods and the data collection techniques used. Additionally, in two analysed articles, scientists claim to have applied the elements of qualitative research and do not provide additional data related to the methodological framework. After analysing these articles, it is estimated that they do not have enough elements of empirical nature, which is why they are not quite rightly declared as qualitative research, but are potentially part of the conceptual work. The same applies to the other two articles previously categorized as the case studies in which also no data on any aspect of the research methodological framework were presented. In accordance with all the above, clear, unambiguous and correct reference to the applied research method has been found in eleven out of eighteen studies, whereby in most of these studies, the reasons for selecting a specific qualitative method are being directly or indirectly pointed out. In the analysed research, the researchers had approximately the same tendencies to collect qualitative data from primary and secondary sources, with in-depth and semi-structured interviews as the most widely used techniques of collecting primary data. These techniques are inherent in mixed-method research, as well as in the methodological framework based on case studies. Specifically, interviews were used in a total of ten out of eighteen analysed studies, with researchers usually briefly explaining the method of interviewee selection. Data gathered through in-depth interviews were usually supplemented by observations and/or qualitative and quantitative secondary data, such as financial statements and business reports of analysed companies. Finally, three articles based on the narrative method find their data in secondary sources, such as literary narrative, newspaper records, historical material, internet articles, and other, mostly written materials. However, within the observed set of articles the mostly concerning is the lack of transparency of the information presented regarding the processing of qualitative data. Out of the eighteen thoroughly examined articles, only five of them have been found to have explicit information regarding the applied analytical procedures. Additionally, most of the procedures are usually only indicated in the works, without providing any insight into excerpt from the coding of empirical material or e.g. without presenting of numerical processing of qualitative data. The only exception from the aforementioned is a study based on the analysis of the documents that provides an insight into the applied analytical matrix. Finally, none of the analysed qualitative articles found data related to the evaluation criteria of the research results, while the ethical issues (such as the protection of anonymity of respondents and data confidentiality) are considered in only three of the eleven studies for which they are relevant.

Table following on the next page

Table 4. Review and evaluation of entrepreneurship articles published in the selected seventeen journals for the period January 2012 - September 2017 with methodological framework based on a qualitative or mixed approach (authors' work)

ID	Thematic focus	Paradigm reference*	Applied methodology **	Indication of the reason for the applied method	Description of data collection and data sources	Description of the data analysis technique	Description of the results evaluation criteria	Indication of ethical aspects (if relevant)
QUALITATIVE APPROACH								
R1	Examining the entrepreneurial role of women in Croatia during the 19th century	Implicit Critical theories	Narrative method (narrative analysis, discourse analysis)	Yes	Yes (qualitative and quantitative historical data, literary narrative and many others)	Implicit	No	-
R2	Examining the practices of social entrepreneurs with an emphasis on the analysis of the style of leadership, organizational typology and the ways of overcoming the dichotomy market goals-social goals	Implicit Constructivism	Case study	Yes in detail	Yes (in-depth interviews, observations, business documentation)	Yes Coding (without display)	No	Yes Guaranteed anonymity of the respondents
R3	Exploring the possibilities of using literary narrative in understanding the role of entrepreneurs in Croatia in the 19th century	Implicit Critical theories	Narrative method (narrative analysis, discourse analysis	Yes in detail	Yes (literary narrative - novel, statistical data, newspaper records, historiography data and the like)	Yes explication explanation	No	-
R4	Testing the entrepreneurial climate with tools for diagnosis - CEAI	No	Case study	Yes	Yes (in-depth interviews with company employees, survey questionnaire)	Partially	No	No
R5	Analysis of the problem of entrepreneurial education (its goals, methods and ways of realization and the like)	No	Case study	No	No	No	No	-
R6	Analysis of the legislative framework and the curriculum for the purpose of assessing the representation of entrepreneurial competences development in elementary and secondary education, examining the role of the local community in these processes	No	? (document analysis indicated)	No	Yes (laws, curricula and programs)	Document analysis	No	-
R7	Exploring the franchise business in Croatia with an emphasis on its representation, the potential of self-employment and the competitiveness of franchise-based companies	No	Case study	No	Yes (interviews)	No	No	No
R8	Examining the fundamental factors of Danish success in entrepreneurship in order to generate implications for entrepreneurship promotion in other countries	No	? (declared interview as a method)	Yes	Yes (in-depth interviews, quantitative secondary data – GEM etc.)	No	No	No
R9	Exploring the opportunities to create entrepreneurial competitiveness in the field of computer programming and the role of business association at the local level	No	Case study	No	Yes (interview)	No	No	
R10	Examining the characteristics of indigenous Maori women entrepreneurs in the tourism sector and analyzing factors that limit business success in tourism in New Zealand		? (declared interview as a method)	No	Yes (in-depth interviews with entrepreneurs)	No	No	Yes Guaranteed anonymity of the respondents
R11	Examining the factors that influence the growth and success of small women-owned businesses in the tourism industry in Poland	No	(intervju naznačena metoda)	No	Yes (in-depth interviews with entrepreneurs)	Yes Coding (without display)	No	Yes Guaranteed anonymity of the respondents
R12	Overview of the types and ways of applying innovations in retail business models in Croatia and in the world using examples from practice	No	- (indicated the use of qualitative research elements)	No	No	No	No	-

ID	Thematic focus	Paradigm reference*	Applied methodology **	Indication of the reason for the applied method	Description of data collection and data sources	Description of the data analysis technique	Description of the results evaluation criteria	Indication of ethical aspects (if relevant)
R13	Examining the competitiveness factors of a company in shipping, with an emphasis on business strategies used by shipping companies for the purpose of successful market positioning	No	Case study	No	Yes (in-depth interviews, business documentation)	No	No	Disclosed respondent's identity
R14	Display of the role and objectives of entrepreneurial education on the example from practice	No	- (not declared, case study)	No	No	No	No	-
R15	Display of the role and objectives of entrepreneurship education on the example from practice with an emphasis on the importance of co-operation between educational institutions with entrepreneurs	No	- (indicated good practice example method)	No	No	No	No	-
R16	Examining the characteristics of gender-based language communication in entrepreneurial discourse by analysing its relation to entrepreneurial leadership styles	No	Narrative research (discourse analysis)	Partially	Yes (qualitative secondary data – published interviews with entrepreneurs from newspapers, magazines etc.)	Yes (qualitative and quantitative content analysis, semantic and grammar analysis by analytical matrix application)	No	No
MIXED APPROACH								
R17	Examining the link between organizational culture and company dynamics (based on the concept of dynamic abilities)	implicit post-positivism	Multiple case studies and quantitative research	Yes (qualitative method as a support to the quantitative framework)	Yes (in-depth interviews, survey questionnaire, observations, business documentation)	Yes (exclusively for the quantitative segment - regression analysis	Yes (exclusively for the quantitative segment)	No
R18	Examining the effectiveness of a national program to encourage innovation in small and medium-sized enterprises	implicit post-positivism	Multiple case studies and quantitative research	Partially	Yes (semi-structured interviews, survey questionnaire, detailed explanation of a measurement instrument)	No	Yes (exclusively for the quantitative segment)	No

** When it is not explicitly stated, the paradigm classification suggested by Guba and Lincoln (1994) was applied to the paradigm of the analysed research. The mentioned authors distinguish four fundamental paradigmatic frameworks: positivism, post-positivism, constructivism and critical theory (Guba and Lincoln, 1994).*

*** When it is not explicitly stated, the following methods are considered in the assessment of the used qualitative methods: narrative methodology, phenomenology, theory based methodology, ethnography and case studies. Although there is no consensus regarding the classification of qualitative research methods, contemporary literature often distinguishes these five fundamental methods while other approaches are often considered the subtypes of a particular method or the data analysis techniques within one of the above-mentioned methodological approaches (Creswell, 2009; Creswell and Poth, 2017).*

4. CONSLUSION

The results of our analysis confirm the assumptions about the still underdeveloped qualitative methods in Croatian entrepreneurship research. In addition, a part of the authors who engage in qualitative research is inclined to apply the method fragmentally and incompletely, suggesting a lack of awareness of the importance of correct and transparent setup and the implementation of qualitative methodological frameworks. Such a path does not contribute to the legitimacy of qualitative methods; furthermore, it undermines their perception by offering the proponents of exclusive positivism reasons to call the qualitative methods unscientific.

Therefore, we believe that efforts should be made within the Croatian scientific community to promote the various forms of qualitative methods available to researchers, the benefits of using a particular method, as well as the role of correct application and transparent presentation of a qualitative research approach to the methodological framework. In spite of the significant number of related studies conducted on samples of internationally recognized journals (eg Aldrich and Baker, 1997; Chandler and Lyon, 2001; Mullen et al., 2009; McDonald et al., 2015), research of this type has so far not been realized on a sample of articles published in journals indexed in the Croatian scientific database, which is certainly the particularity of this study. In addition, its value is reflected in the fact that the analysis was carried out over a relatively large number of scientific and professional journals in the field of social sciences. However, the time period covered by our study (January 2012-September 2017) compared to similar researches carried out on different samples is relatively short, which is one of its core constraints. Therefore, in order to examine long-term trends related to the tendency of researchers to apply qualitative methods, future research should cover works published for a longer period of time. Additionally, future comprehensive analyses of entrepreneurship articles should, beside articles from journals, also include those published in the proceedings of relevant scientific conferences.

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DEVELOPING THE SYSTEM OF INTERPRETING INDICATORS OF SATISFACTION WITH THE ACCESSIBILITY AND QUALITY OF HEALTH CARE, PUBLIC AWARENESS ABOUT RIGHTS IN THE COMPULSORY MEDICAL CARE SYSTEM

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ABSTRACT

The purpose of the study is an analysis of the current system of interpreting indicators of satisfaction with accessibility and quality of health care and public awareness of people's rights in the compulsory medical care system and the development of proposals for its improvement. During the research, such methods as analysis and synthesis, as well as methods of abstraction and generalization, were used. The results obtained in the course of this study can be applied for scientific purposes, and also as a source material for further studies of the specifics of monitoring the satisfaction of insured persons with the quality of medical care. The research materials are applicable in further theoretical and methodological developments of this subject, as well as in practical activities - when carrying out surveys of insured persons by insurance medical organizations. The novelty of the research consists in the development on the basis of the existing system of interpretation of the indications of satisfaction of the insured persons with the quality of medical care of a new, more advanced, scale of assessments, which will allow obtaining better results of sociological surveys in this area.

Keywords: *compulsory medical insurance, insured persons, survey, empirical indicators, interpretation of indicators, monitoring of satisfaction of insured persons with quality and availability of medical care*

1. INTRODUCTION

Over the past years, the state has taken a serious step forward in the development of social protection social security institutions, making serious steps in the area of their reform [6-8, 15]. The issue of functioning of such an important system as the system of compulsory medical insurance *(OMS)* has not been immune. At the same time, the state attaches an important role not only to improving the quality of health care [9], which is undoubtedly one of the most important aspects, but also to receive a response from those for whom this institution of social protection - insured persons is intended. Evaluation of their satisfaction with the quality of medical services will help to effectively respond to identified shortcomings and take timely measures to improve the operation of the *OMS* system. Therefore, carrying out sociological surveys is an indispensable condition for organizing events aimed at studying the satisfaction of the insured persons with the accessibility and quality of health care, their awareness of the possibilities of the system of rendering medical assistance, and about the rights in the field of compulsory medical insurance. The need for a survey in the system of such events is enshrined in a number of normative documents regulating the functioning of the OMS system and the activity of the Territorial funds of *OMS* and insurance medical organizations [1, 2, 5]. The procedure for conducting the survey is determined by the general organizational and scientific principles of conducting similar studies, as well as the Methodical (Technical) Guidelines for the conduct of sociological surveys (questionnaires) of insured persons in the field of

compulsory medical insurance (furthermore - Methodological instructive regulations) and Methodological Recommendations "Organization of a sociological survey (questionnaire) of the population on satisfaction with the availability and quality of medical care in the implementation of compulsory health insurance, developed for use by insurance medical organizations and territorial funds of compulsory medical insurance (furthermore referred to as the TF-OMS) [3, 4]. Sociological surveys in medical organizations that carry out activities under the territorial programs of compulsory medical insurance are conducted among the population insured in the *OMS* system when receiving medical care at various stages of its receipt (outpatient and hospital care, inpatient care, inpatient extended care). The main purpose of the surveys is to provide a monitoring process, in other words systematic collection and analysis of data to improve the indicators of satisfaction and awareness of the insured people. These surveys are carried out both at the level of individual regions and the Russian Federation as a whole. The main principle of their organization and conduct is to ensure the scientific correctness of the whole monitoring system, which is achieved through the use of unified tools (questionnaires) and unified approaches to the construction of a sample. The study of the experience of carrying out sociological surveys with the participation of insurance medical organizations [10-14] shows that at present there is a practice of wide use of different methods and approaches to assessing the quality and availability of medical care. According to the analysis, there is no unified methodology for interviewing, there are different interpretations regarding the object, the subject of the study, the evaluation criteria used, the indicators and variables for the quality and accessibility of medical services, the scores of satisfaction and accessibility scores used in the surveys conducted by different health insurance organizations. In this regard, one of the most important issues, along with the unification of indicators of satisfaction with quality and accessibility of medical care, is the interpretation of the results of surveys of insured persons, which will help to form an integral picture of the population's satisfaction with the quality and availability of medical care.

2. METHODOLOGY

In the study on the formation of a system for interpreting the indicators of satisfaction with the availability and quality of medical care, public awareness of their rights in the area of *OMS* methods such as analysis and synthesis, as well as abstraction and generalization were applied. These methods represent oppositely directed and interdependent methods of cognition, thereby helping to collect the facts and verify them, formulating the causes and consequences of the processes being studied.

3. DEVELOPING THE SYSTEM OF INTERPRETING INDICATORS OF INSURED PERSONS' SATISFACTION WITHIN THE OMS SYSTEM

Interpretation of data for the purposes of monitoring indicators of satisfaction of insured persons with the quality and accessibility of medical care, their knowledge of their rights in the *OMS* system should be carried out on the basis of common empirical indicators developed on the basis of scientifically grounded criteria. The main criteria for the correct selection of the developed indicators are:

- the need and sufficiency of the indicator for an empirical description of the subject of research, which is the satisfaction of the insured people with the quality and availability of medical care;
- availability of indicators by accessible sources of information, such as in the monitoring situation, data from sociological surveys;
- the possibility of reliable methodical (technical) support for the collection of necessary information.
- minimization of the set of indicators for this study.

The purpose of the empirical interpretation of these indicators is a consistent specification of the content of concepts, which makes it possible to reach such manifestations (mediated, indirect) directly inaccessible to the perception of the studied phenomena that lend themselves to fixation and measurement. The main task is to provide a transition to indicators that allow obtaining sociological information that can be correlated with the initial representations of respondents' satisfaction with the quality and accessibility of medical care developed in the process of empirical interpretation of the subject of the study at the stage of developing targets and indicators. An empirical indicator is an element or characteristic of an object that is accessible to observation and measurement. Indicators represent the features of the studied object or, being presented in accordance with theoretical concepts, express the actual empirical content of concepts or the connection of concepts. The methodological instructive regulations provide empirical indicators for interpreting the data obtained during surveys, but they, in our opinion, need to be improved. In order to improve the quality and reliability of the primary information obtained during the sociological surveys of the insured under the compulsory health insurance system, it is proposed to make some adjustments to this system. These changes will not affect the essence of the entire system of empirical indicators, they are rather aimed at clarifying some scales, threshold intervals and values of indicators, so their adoption will not radically change the procedure for analyzing the data, thereby making it easy to implement in practice. The main empirical indicators can be divided into 2 large groups:

- satisfaction with the availability and quality of health care provided to the population within the framework of the *OMS* programs;
- awareness of insured persons about their rights in the *OMS* system.

Each group has its own system of interpretation of indicators. Let us first consider the first set of indicators - the satisfaction of the population with accessibility and quality of care. Questions (characteristics) associated with these aspects are scaled, that is to say they are grouped and measured on the basis of logically selected features that reflect different positions of people within the boundaries of a certain series of continuous changes in the values of a given attribute (from satisfaction to dissatisfaction) that orders these positions in the range:

1. Satisfied
2. Rather satisfied than not satisfied
3. Rather dissatisfied than satisfied
4. Not satisfied.

Satisfaction with the availability and quality of medical care provided to the population within the framework of OMS programs is measured using the following empirical indicators applicable to all indicators of satisfaction (Table 1).

Table 1 - Empirical indicators of satisfaction with quality and accessibility of medical care, applied in accordance with the technical or methodical instructive regulations

Level of satisfaction with the quality and accessibility of care	**Proportion of the sum of ratings "Satisfied" and "Rather satisfied than dissatisfied"**
Low	0-25%
Satisfactory	25-50%
Average	50-75%
High	75-100%

In our opinion, the above rating scale has a number of inaccuracies and shortcomings: on the one hand, it is poorly balanced; on the other hand, there is a certain ambiguity in the interpretation of the values due to the substitution of different grounds.

For example, on the one hand - "a satisfactory level" (then the scale should be in the continuum of values "unsatisfactory-satisfactory"), on the other - "high", "average", "low". It is doubtful that the satisfactory level is below the average. As another reason for changing the scale of the consolidated assessment of satisfaction indicators, one can point out the discrepancy between the interpretation of the numerical values (obtained data) of the satisfaction indicators and the information indices, which will be considered below. To level out the above shortcomings, we propose the following edition of indicators and variables of satisfaction with the accessibility and quality of medical care provided to the population within the framework of *OMS* programs (Table 2).

Table 2 - Developed empirical indicators of satisfaction with quality and availability of care

Level of satisfaction with the quality and accessibility of care	**Proportion of the sum of ratings "Satisfied" and "Rather satisfied than dissatisfied"**
Low	0-20%
Below the average	20-40%
Average	40-60%
Above the average	60-80%
High	80-100%

Awareness of the rights of insured persons in accordance with the methodological instructive regulations should be measured using the following empirical indicators applicable to all indicators of awareness (Table 3).

Table 3 - Empirical indicators of awareness of the rights of the insured according to the methodological instructive regulations

Level	**The proportion of respondents who are aware of the rights of patients**	OR	**The share of rights that respondents are aware of on average**
Low	0-25%		less than 1/3 rights
Average	25-70%		1/3-2/3 rights
High	70%-100%		more 2/3 rights

The rationale for changing the range of interpretation of values of indicators of the level of awareness are the following:

1. The assessment scale itself was revised and adjusted to meet the requirements for a better balance in the assessment. Instead of a three-membered content scale of assessments - "I know - I heard something - I do not know - I can not answer", a new assessment scale should be introduced. In the content plan, it has become a four-member - "I know - rather yes - more likely no - I do not know". The introduction of this scale will make it possible to more accurately measure and interpret the level of knowledge of respondents about their rights.
2. The expediency of unifying the scale of the total assessment of the indicators of awareness with the indicators of satisfaction.
3. The need to apply a more flexible and expanded interpretation scale in order to improve its differentiating ability to more accurately classify the meaningful values of the data obtained.

In view of the foregoing, empirical indicators of awareness of the rights of the insured will look like the following (Table 4).

Table 4 - Developed empirical indicators of awareness of the rights of insured persons

Level	The proportion of respondents who are aware of the rights of patients
Low	0-20%
Below the average	20-40%
Average	40-60%
Above the average	60-80%
High	80-100%

4. CONCLUSION

In the process of finalizing the Methodical Guidance in the part of the system of indicators characterizing the accessibility and quality of medical care, the public's awareness of the possibilities of the system of medical care and the rights of insured persons in the field of compulsory medical insurance would be appropriate, in addition to the general interpretation of the values of the set of indicators reflecting these parameters, additionally enter new aggregated indicators (indices) characterizing summary values for the entire block of the indicated variables characteristics. The formation of aggregated indicators (indices) will allow to more accurately measure the characteristics of "satisfaction" and "awareness" of the patients insured in the *OMS* system at all stages of providing free medical care. The accuracy of the measurement will be determined by the fact that the above characteristics, which fix the basic dispositions of the insured person in the *OMS* system, will allow to judge and evaluate the current situation with the provision of free medical care, not only through disparate variables that reflect different aspects of the respondents' "satisfaction" and "awareness", but also on aggregate, aggregated indices, which are formed on the basis of combinations of values of all sets of variables of characteristics that reflect these indicators. Using this scale of satisfaction assessment, as well as general and unified quantitative characteristics for interpreting the overall level of satisfaction, allows to more accurately, clearly and adequately measure respondents' satisfaction with the quality of the provision of medical care, as well as its accessibility. Its important advantage over other scales used in other surveys is the balance and balance of positive and negative assessments, as well as the lack of blurring in assessing their satisfaction. This is what happened when choosing the option "not fully", which is currently used in accordance with existing methodological instructive regulations by many health insurance organizations to assess satisfaction with the quality and availability of medical care. When using such a scale it is impossible to clearly identify which pole of the "satisfied - not satisfied" characteristic this position relates to and accordingly it is impossible to correctly and unequivocally interpret the initial information, accordingly, a considerable group of insured persons appears, where it is not feasible to define clearly their attitude (positive or negative) towards the quality of the provided free medical care. With the new scale of assessments, such interpretation difficulties are removed, and the measurement of the characteristic of satisfaction becomes more valid and reliable, which improves the quality of the information provided.

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METHODS OF CONDUCTING SURVEYS TO MONITOR PEOPLE'S SATISFACTION WITH THE QUALITY AND AVAILABILITY OF MEDICAL CARE IN RUSSIA

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ABSTRACT

The main purpose of this study is to analyze the methods of conducting sociological surveys and identify the most suitable ones for monitoring the satisfaction of citizens with the quality and availability of medical care provided to them through the compulsory medical insurance system. The methods of analysis, synthesis, abstraction, generalization were used during the research. The results of this study provide for the possibility of their further application both in subsequent theoretical and methodological developments on this topic, and the implementation of the findings in practice when carrying out surveys of insured persons by insurance medical organizations. The results of this research can be used for scientific purposes, as a material for further studies of the specifics of conducting surveys. It is possible to use the material for methodological purposes as initial information on a number of sociological disciplines. The novelty of the study is in analyzing the positive and negative aspects of each method of conducting sociological surveys, summarizing the obtained results and formulating the final conclusions on the most effective methods of conducting a survey while monitoring the population's satisfaction with the quality and availability of medical care.

Keywords: *compulsory medical insurance, survey, survey methods, two-level system to monitor satisfaction of insured persons with quality and availability of medical care, insurance representatives*

1. INTRODUCTION

Since the introduction of the compulsory medical insurance (OMS in the Russian language) in the Russian Federation, which guarantees the provision of free medical care for citizens in accordance with the *OMS* Programs, the system on protecting the rights of insured citizens has been developing as well. The most important element of this system is the creation of an institution of insurance representatives in Russia. Insurance representatives are employees of insurance organizations working in the system of compulsory medical insurance, who have received special training, whose duties include the functions of accompanying patients at all stages of medical care, supervising the course of treatment and providing legal support if necessary. A nationwide project to create this institution was launched in the Russian Federation on July 1, 2016. It consists of three stages, each envisaging the start of operation of insurance representatives of a certain level (first, second, third). Since January 1, 2018 the project has become fully operational. The task of this structure is to assist patients in interaction with the healthcare system to provide citizens with an opportunity to receive qualitative and timely medical care.

An insurance representative for citizens is not at all an impersonalized medical insurance organization, but rather an active assistant to patients on any issues which they encounter within the *OMS* system. An important aspect in the activity of insurance representatives is conducting sociological surveys of the population aimed at studying the satisfaction of the insured persons with the accessibility and quality of medical care, their awareness of the possibilities of the system of rendering medical assistance, and about the rights in the field of compulsory medical insurance. The main purpose of the surveys is to ensure the process of systematic collection and analysis of data to improve the indicators of satisfaction and awareness of the insured people. In addition to this, information on potential acts of corruption in the medical environment is also important (this issue is relevant for all the spheres of the state activities [10]), which is why the surveys envisage the collection of information on the patient's awareness of his/her rights within the *OMS* system and the level of their implementation as well as on unofficial payments to doctors for their rendered services. The obtained data should be the basis for improving the quality of providing free medical care to the population, i.e. an important element of feedback for the functioning, self-regulation and development of the entire health system [5]. It should be noted that this step lies in the mainstream of nationwide trends, when the quality of services provided to the population is receiving more attention from the state [4, 8, 9]. The main principle of organizing and conducting surveys is to ensure the scientific correctness of the entire monitoring system, which is achieved through the use of unified tools (questionnaires) and unified approaches to the construction of a selected set (selection). A two-level monitoring system should be used here. The first level is the collection of operational information on the satisfaction of the insured people with the quality and availability of medical care. It is carried out through quarterly sociological surveys on special questionnaires containing a minimum list of the most significant indicators. The second level is the collection of detailed information on the satisfaction of the insured persons with the quality and availability of medical care, as well as on the awareness of the possibilities of the system of medical care and of the rights of insured persons in the field of compulsory health insurance. However, at present, despite the availability of specialized documents [1, 2], health insurance organizations use different methods of conducting interviews and methods of collecting information, which leads to the fact that surveys are conducted mainly spontaneously, without clear sampling procedures. Simultaneously they rely on a different study audience. This shortcoming leads to difficulties in analyzing data on satisfaction with the quality and availability of medical care, which significantly reduces the value of survey results of insurance health organizations. Moreover, with this approach, it is almost impossible for organizations to observe the age and gender quota of the respondents, which is also a negative factor. In this regard, the purpose of the paper is to analyze and substantiate the most appropriate methods of obtaining information for interviewing insured persons.

2. METHODOLOGY

In the process of research, certain scientific methods of the empirical-theoretical group were applied: analysis and synthesis, abstraction and generalization, representing oppositely directed and interdependent methods of cognition. The listed methods of research help to collect the facts as well as to test them, to systematize, to reveal certain dependencies, and also to formulate the causes and consequences of the studied processes.

3. METHODS OF CONDUCTING SURVEYS

The survey method is a method of collecting social information about the object under study in the course of a direct (in the case of an interview) or indirect (in questioning) socio-psychological communication between a sociologist (or interviewer) and a questioned person (called a respondent). The information is collected by recording the respondent's answers to

questions posed by the sociologist, arising from the goals and objectives of the particular study. Thus, a survey is a method based on a response-question situation. Its main purpose is to obtain information on the state of public, group, individual opinion, as well as information about facts and events reflected in the mind of the interviewee [7]. There are several basic ways to conduct polls: a questionnaire by self-filling, sending out questionnaires by mail (Internet), face-to-face interviews, telephone surveys. We will consider the essence, merits and shortcomings of each method. In the case of a questionnaire-based survey using the method of self-completion, the process of communication between the researcher and the respondent is mediated by the questionnaire, i.e. the questionnaire-based survey is a written type of an interview [6]. The questionnaire is considered to be a rather convenient research tool, requiring compliance with the relevant rules, recommendations, structure of the presentation of the main elements of the questionnaire [3]. A survey is conducted by a questioner, whose function is to receive instructions from the sociologist and follow them, creating a positive motivation for the respondent in relation to the survey. There are special ways of forming such motivation, for example, appeal to personal motives, civic duty, etc. In addition to this, the questionnaire explains the rules for filling out the questionnaire and for returning it. The merits of a questionnaire survey using the self-filling method include: comparative cost effectiveness; a possibility of reaching large groups of people; applicability to the diverse aspects of people's lives; good formalizability of the results; minimal influence of the researcher on the interviewee; efficiency; saving money and time. The questionnaire-based survey is not free from shortcomings: the most serious one is the inability to control the process of filling out the questionnaire, which can lead to the lack of autonomy of the respondent's answers, influence from the environment. In particular, the information obtained is partially subjective, which is due to the pressure of the society and the endorsement. In addition, a survey may provoke a respondent to respond, even if he or she is not competent in a particular matter. Speaking about the sending of questionnaires by mail (Internet), it should be noted that this research method assumes the absence of a questioner, the questionnaires are sent to respondents by mail (Internet), the answers are received in the same way. Carrying out this type of survey requires a carefully designed sample. We highlight the advantages of this method - they include a fairly simple organization of the survey and its low cost, which leads to the possibility of conducting a survey by a small group of researchers. The pluses can be attributed to the lack of influence of the questioner on the respondent. However, this method is also not free from a number of shortcomings: they include the shortcomings of the questionnaire survey by the method of self-filling, which makes possible the influence of the environment on the completion of the questionnaire. Also added are such difficulties as the respondent's lack of opportunity to clarify issues, difficulties with the possibility of qualitative answers to open questions, and participation in such surveys of the most interested people, which leads to uneven sampling. If we consider this method from the point of view of its applicability to assessing the satisfaction of insured persons with the quality and availability of medical care, then it should be recognized that using this method will most likely result in a distortion of results – the survey will be joined by those who are unhappy with the quality and availability of the provided help rather than those who are satisfied with everything and do not want to change anything. In addition, with absentee surveys, the problem of collecting completed questionnaires is acute. To cope with this shortcoming, various ways of motivating respondents are used: preliminary notices, explanations, reminders of the survey; putting souvenirs in the questionnaire (postcards, calendars, etc.), re-sending questionnaires to the same addresses; personalized appeals to the respondents, etc. The interview suggests a different kind of contact between the sociologist and the respondent, mediated by the interviewer only and not by the questionnaire and the questioner together. The role of the interviewer in this case is not just the distribution of questionnaires and the provision of their completion by respondents, but at least the voicing of

the questionnaire questions. The functions of the interviewer depend on the type of an interview [12]. The higher role of the interviewer in the study places higher demands on him. Therefore, the interviewer must undergo more complex training than the questionnaire. The methodology of interviewing is quite different from the organization of questionnaires. In general, the interview can provide deeper and more reliable information, which is undoubtedly a significant advantage of the interview over the questionnaire, but its procedure is too long and requires considerable resources (economic, material, intellectual, organizational and other), which can be identified as a significant drawback . To conduct interviews, it is necessary to attract trained professionals who must adhere to the text of the interview form in a principled and unswerving manner without violating the sequence of questions and not allowing a free interpretation of questions and answers during the interview with the respondent. One of the most common types of interviews, which is now used quite often, is a telephone interview, which, with the establishment of call centers in many organizations, is becoming increasingly widespread and recognized. Phone surveys are extremely popular in the work of the mass media, in the study of public opinion by state authorities, in the study of the motives of entrepreneurial activity and the socio-cultural creativity of the population. Telephone surveys are carried out by a group of call center operators who contact the respondents automatically. In recent years, the popularity of telephone interviews has increased, mainly because of the increased costs for face-to-face interviews and lowering tariffs for long distance calls. Telephone interviews, like face-to-face ones, provide the interviewer with an opportunity to explain complex instructions and questions, although it is usually more difficult to explain something by phone than by means of direct communication. Telephone interviews at the same time have a number of differences from face-to-face interviews, which can be attributed to the merits, as well as to the shortcomings of this method. We would like to highlight the strong points of telephone interviews:

- an opportunity to conduct interviews with complicated algorithms of transition from one question to another as CATI (Computer Assisted Telephone Interviewing) automatically chooses the next question irrespective of the previous answer given by the respondent;
- the total cost of collecting quantitative data is quite low compared to other survey methods, since it is possible to communicate with sample representatives several times if they were not available during the first attempt;
- there is a high possibility to obtain a truly random sample, which will increase the validity and quality of the results.

On the other hand, telephone interviews have a number of drawbacks compared to other forms of interviews:

- the duration of the questionnaire should be relatively small, since it is very difficult to keep respondents by the phone for a long time;
- the questions should be quite simple as complex or detailed questions for the respondent are hard to remember and answer accurately;
- it is difficult to obtain confidential data, such as income information - people usually do not like to give such information over the phone;
- the level of refusals is high due to the fact that many people do not like to be disturbed at home.

If to summarize the pros and cons of different types of surveys, the overall picture will look the following way (Table 1).

Table 1 – Positive and negative aspects of carrying out different kinds of surveys

Method	Positive aspects	Negative aspects
Questionnaire survey using the self-filling method	• comparative robustness, saving money and time • ability to reach large groups of people • applicability to the most diverse aspects of people's lives • good formalizability of results • minimum influence of the researcher on the person being interviewed	• poor control over the process of filling in the questionnaire • probability of influence from the environment • subjectivity of information received • insufficient filling of the questionnaire in comparison with the interview • the problem of collecting completed questionnaires is acute
Mail Survey	• easy to organize • it is possible to use illustrations • the interviewer does not influence the respondent when completing the questionnaire • low in cost • can be conducted by a small group of researchers	• there is no possibility of clarifying the questions with the interviewer, • there is no opportunity to respond in a qualitative way to open questions, • most often such surveys are participated by the most interested people
Face-to-face interview	• it is much easier to ask difficult questions • a possibility of a live conversation • it is easy to get the attention of a person for a long time	• the interviewer influences the interviewee • it is difficult to control the interviewer • it is necessary to have a whole team of interviewers • high costs
Telephone interview	• low costs • a possibility of centralizing control over the course of the survey • high speed of carrying out • ability to collect both actual and relationship data	• there is no possibility to show illustrations, • it is impossible to keep the interviewee's interest for more than 15-20 minutes, • more difficult questions are difficult to perceive by ear

4. CONCLUSION

If we sum up all the advantages and disadvantages of the abovementioned methods with regard to conducting opinion polls by insurance representatives regarding the satisfaction of the insured persons with the quality and availability of medical care, then the method of face-to-face interview will be the most preferable. Today it is one of the most common methods of data collection in the process of quantitative research. This method is based on direct communication of the interviewer with the respondent, while the interview of the respondent occurs in the course of a personal conversation without outsiders. The method of face-to-face interviews is used in many areas that require the monitoring of statistical data and results.

When conducting a personal interview, questions of increased complexity can be used, since the interviewer personally conducts a survey on the questionnaire, which eliminates confusion, provides the flexibility of the interview and the possibility of obtaining more information. The main advantage of a face-to-face interview is a personal talk, when the interviewer sees the respondent and can follow his gestures and facial expressions, which ensures that the respondent fully understands the questions and tasks in general. With the help of personal interviewing, the attainability of the planned sample of respondents increases, it becomes possible to vary the consistency of questions, explain questions that are not clear to the respondent, etc. Thus, through face-to-face interviews, it is possible to collect the most detailed and qualitative data on the satisfaction of the insured persons with the quality and availability of medical care. This method is most suitable for in-depth studies of the second level, in which a detailed questionnaire with a sufficiently large number of questions is used, some of which can be difficult to understand without explanation or can raise some questions. Such interviews should be carried out by the second-tier insurance representatives whose activities are aimed at the organization of informing and accompanying the insured persons while providing medical assistance to them, as well as at the protection of the rights and legitimate interests of the insured people in the sphere of compulsory medical insurance (*OMS*) as these employees will most likely establish mutual confidence with the insured persons and, accordingly, this will increase the possibility that a respondent will give them enough time. Another possible way of interviewing is a questionnaire at the place where the respondents receive medical care. This is, from the point of view of the introduction of a unified poll methodology, a fundamentally important step. The introduction of a unified research method will make it possible to exclude a relatively high degree of freedom of action and great uncertainty in terms of regulating methods, techniques, conditions and order of questioning (which had a negative effect on the very possibility of referencing and comparing data). On the other hand, the introduction of a single research method clearly defines a unified procedure, based on the requirements of providing uniform approaches and a common methodology for the conducted studies. This method can be used both for conducting surveys of the first and second level of monitoring. The next, third and the most optimal way to conduct surveys is a telephone survey. This method is best suited for the first-level specialists working in call centers of insurance medical organizations who have the necessary skills for communicating with respondents and conducting interviews, as well as all the necessary equipment and software for this task. With a small number of questions in the questionnaire, their relative simplicity, and a good formalization of the questions, this method is most preferable for conducting on-line questionnaires timed for 3-5 minutes. This survey method is suitable for conducting quarterly surveys of the first level that collect operational statistics on satisfaction with the availability and quality of medical care in the *OMS* system. To conduct annual in-depth interviews on the satisfaction of insured people with the quality and availability of medical care, as well as awareness of the possibilities of the system of medical care and of the rights of insured persons in the field of compulsory medical insurance, this method is not suitable. Thus, in order to conduct interviews with insured persons, based on the purpose and objectives of the study of satisfaction with the quality and accessibility of the provision of medical services under the *OMS* program, the most effective will be such types of interviewing as personal interviewing at the place of providing services, interviewing by phone, questioning by self-filling of questionnaires at the venue of the medical care rendering.

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FUNCTIONING OF BIOFUELS AGAINST THE FINANCIAL SITUATION OF PRODUCERS' IN POLAND

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ABSTRACT

The aim of the article is to forecast the need for biofuels in the future and to analyze the financial situation of biofuel producers in Poland. The main body of the paper indicates the main legal aspects of biofuel market and the formation of the National Index Target. The prognosis of national consumption of liquid fuels was prepared using autoregressive integrated moving average model (ARIMA). Furthermore, key financial data of biofuels' producers was analyzed using statistical measures and methods (T-test). The conducted research led to conclusions and showed key aspects of efficient companies functioning in the biofuel sector.

Keywords: *biofuel, biocomponents, regulated market, financial aspects of biocomponents*

1. INTRODUCTION

The biofuel production process in Poland started in 2005 and its regulation was based on the Biocomponents and Liquid Biofuels Act[1]. The act established regulatory framework and affected the creation of the Polish market of biofuels and biocomponents. This act is related to the direction of development of renewable sources of energy in the European Union[2]. The idea of running motors with vegetable oil emerged already in the 19th century as an answer to decreasing sources of petroleum. Rudolf Diesel constructed an engine run with arachis oil. However, the development and use of oils did not take place, this process was stopped, and the idea came back in the 1980s after the oil crisis (Borychowski, Czyżewski 2012, 40). The main aim of increasing biofuel production is ensuring energy safety, environmental protection related to the reduction of greenhouse gases emission and CO_2, as well as the development and support of countryside areas by generating greater need for products from these regions (Rosiak et al. 2011, 55). The aim of this article is to present the need for biofuels and to analyze the financial situation of biofuel producers in Poland. As it can be observed, there was an increase in the volume of biocomponents production from the level of 18 billion l in 2000 to 106 billion l in 2012. Significant dynamics cause an increase in the share of biocomponents in the overall amount of sold liquid fuels. Biocomponents are more and more important, but they do not yet constitute a source of diversification in the supply of liquid fuels. Generally, the greatest producers of biocomponents include Brazil, the United States, and the European Union.[3]

2. REGULATORY FRAMEWORK IN THE MARKET OF BIOFUELS

The market of biofuels and biocomponents in Poland continues to develop in accordance with the requirements of the European Union.

[1] Biocomponents and Liquid Biofuels Act of 25 August 2006 (Journal of Laws of 2006 No. 169 item 1199).
[2] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009. This directive overruled the directive 2001/77/EC and 2003/30/EC (Official Journal of the European Union L 140 of 5 June 2009, p. 16, as amended).
[3] A. Piwowar, "Produkcja biokomponentów i biopaliw ciekłych w Polsce – tendencje rozwoju i regionalne zróżnicowanie" [in:] *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu* XVII, vol. 2 (Warszawa 2015), 196.

Aside from legal norms introduced by the legislator, the following bodies determine the character and norms of the market of biofuels and biocomponents in Poland:

- Energy Regulatory Office (Urząd Regulacji Energetyki, URE) by changing energy law,
- Office of Competition and Consumer Protection (Urząd Ochrony Konkurencji i Konsumentów, UOKiK) by controlling the quality of biofuels and biocomponents in Poland,
- Agricultural Market Agency (Agencja Rynku Rolnego, ARR), which is a state legal person and a paying agency, whose task is mainly to distribute funds, administer, monitor, and inform about the agricultural market in Poland.

Manufactured products have a required quality, as it is necessary to receive a certificate issued by a certification body indicated by ARR.
Changes in the regulations were to increase the amount of biocomponents added to liquid fuels (the National Index Target[4]), which affected the demand for biocomponents (fig. 1).

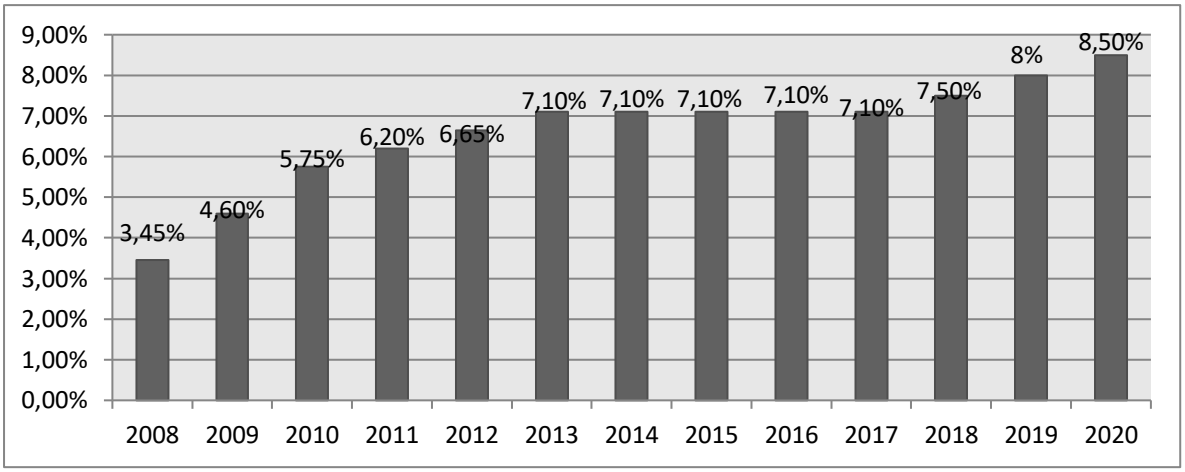

Figure 1 National Index Target (NIT) per a caloric value) in accordance with the regulation of the Council of
Ministers (Biocomponents and Liquid Biofuels Act of 25 August 2006 (Journal of Laws of 2006 No. 169 item 1199, as amended), Regulation of the Council of Ministers of 13 August 2013 on National Index Targets for 2013-2018 (Journal of Laws of 2013, item 918), ARR's President's ordinance no. 173/2011/Z of 27 December 2011).

A reducing coefficient in 2012-2016 amounted to 0.85. That is why, after appropriate standards have been met, NIT[5] could be lowered by 15% (fig. 4).

Figure following on the next page

[4] Act on biocomponents and liquid biofuels of 25 August 2006 (Dz. U. [Journal of Laws] of 2006 No. 169 item 1199). Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009
[5] In Poland the abbreviation is NCW.

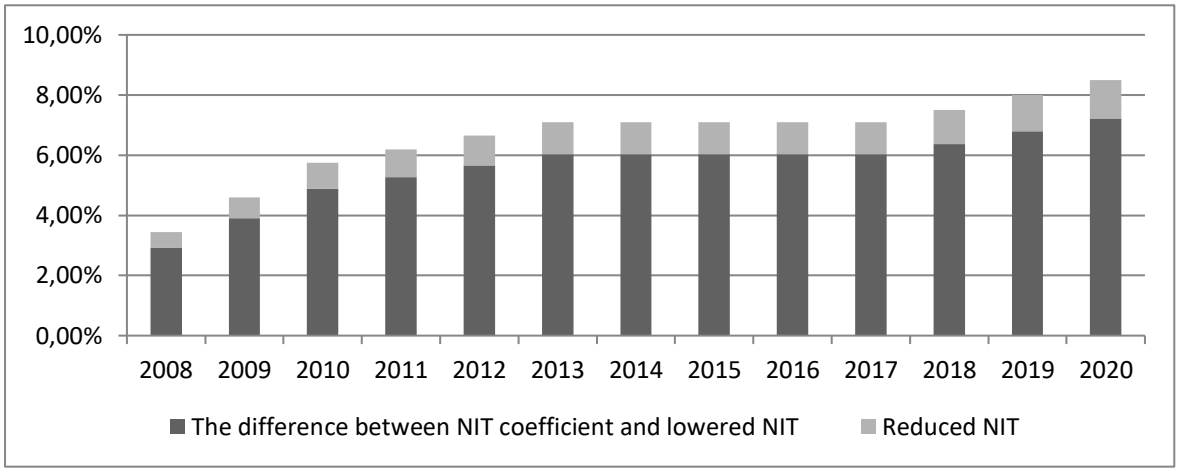

Figure 2 The use of reducing coefficient NIT of 0.85 and the difference between NIT and lowered NIT

(Own analysis based on: Biocomponents and Liquid Biofuels Act of 25 August 2006 (Journal of Laws No. 169 item 1199, as amended), Regulation of the Council of Ministers of 13 August 2013 on National Index Targets for 2013-2018 (Journal of Laws of 2013, item 918), ARR's President's ordinance no. 173/2011/Z of 27 December 2011).

3. LITERATURE OVERVIEW AND RESEARCH HYPOTHESES

The energy industry, especially the sector of biofuels, will be more and more significant for the global energy strategy, contributing to the environment protection or delivery diversification.

3.1. Literary publications on renewable resources

In recent years, regulations related to environmental protection have been positively affecting the market of renewable resources. Since 2000, there had been an increase in the volume of world production of biocomponents, from 18 billion l in 2000 to 106 billion l in 2012. Strong dynamics lead to an increase in the share of biofuels and biocomponents in the general amount of sold liquid fuels (Piwowar 2015, 196). Non-renewable energy resources will run out within next decades. It has been estimated that petroleum will run out within 45 years, natural gas—in 60 years, and coal—in 120 years (Guo et al. 2015, 712). It should be noted that fossil fuels provide for ca. 88% of the world consumption of energy, 35% of which is ensured by petroleum, 29%—by coal, and 24%—by natural gas. Nuclear energy constitutes another ca. 5-6% of the overall energy consumed in the world (Ahmad et al. 2016, 214). In recent years, there has been an increase in the production of biodiesel, which may allow for a more effective management of production in the future (Mazanov et al. 2016, 107). It will be possible with the production process which, for instance, uses ultrasounds (Gole, Gogate 2013, 62). Currently, there are attempts aiming at energy supply diversification, with due care exercised to ensure environmental protection (Araujo 2013, 112).

3.2. Research hypotheses

This article aims at specifying how the consumption of biofuels will change in the following years, and analyzing the financial condition of the producers of biofuel.

- Hypothesis 1 (H1): Will the need for biofuels increase in Poland in the following years? The aim is to determine if biofuels in Poland will develop in the following years.

- Hypothesis 2 (H2): What size are the companies that produce biofuels? Is their financial situation sufficient to allow for a market development in Poland?

Introduced legal norms shape the functioning of the industry and the directions of its changes. The aim is to determine the financial situation of the producers of biofuels and whether the future development will be possible.

4. RESEARCH METHOD

The study was performed considering Polish and world literature, as well as available data on biofuels and the financial status of their producers in Poland. Biofuels have been used for a relatively short time now, therefore the number of works on this topic is limited. The first stage of the research was to predict the consumption of fossil fuels. Based on the autoregressive integrated moving average (ARIMA) model, a prognosis of fuel consumption in the following years has been created with the use of an analytical program Gretl. The next stage was to determine the financial condition of the producers of biofuels in Poland based on financial data from the Emis Intelligence database. The study consisted in dividing enterprises using the criterion of their size, and then in analyzing the financial situation based on statistical methods and measures.

5. RESEARCH RESULTS

The results of the conducted research have been presented below. The hypotheses have been tested, aiming at achieving the results and drawing the conclusions, which allowed to achieve study results.

5.1. ARIMA modeling

With the consumption of liquid fuels in mind, a prognosis for 2016-2020 that includes future consumption of diesel oil and motor petrol has been created with the use of ARIMA model. ARIMA modeling is based on optimization of model parameters and estimation of function parameters, followed by a prognosis.

5.1.1. Diesel oil

Optimization of model parameters - For the use of ARIMA model, an ADF test allowed to determine the stationarity, and then the diversity level (d parameter). A test for a diverse series indicates whether it is necessary to reject the zero hypotheses, which means that the series is not I (0) level stationary; thus, d equals 0.

In order to determine p and q, an Armax function was used in Gretl. The upper values were set as (p,q) = (3,2). An optimum ARMA model, except for a (0,0) model, will be a model in the form of (0,2). Considering stationarity, the estimation was based on an ARIMA (0,0,2) model.

Estimation of function parameter - The results of estimation that take into consideration the above parameters can be seen below (tab. 1).

Table following on the next page

Table 1 ARIMA estimation based on (0,0,2) parameters (own analysis)

ARMA estimation, used observations from 2006-2015 (N = 10) Dependent variable (Y): Diesel oil				
	Coefficient	Stand. error	of	p value
const	13395.2	841.365	15.9208	<0.0001
theta_1	1.27772	0.2809	4.5487	<0.0001
theta_2	0.998317	0.30315	3.2932	0.001
Dep.varia.arith.aver.	13615.7		Dep.varia.stand.dev.	1453.501
Fortuit.disord.aver.	207.6275		Fortuit.disord.stand.dev.	884.654
Credibility logarithm	−84.08285		Akaike information criterion	176.1657
Bayes. Schwa. Crit.	177.376		Hannan-Quinn criterion	174.838

	Real	Abstract	Module	Periodicity
MA				
Root 1	-0.6399	0.7695	1.0008	0.3604
Root 2	-0.6399	-0.7695	1.0008	-0.3604

The model determined an autoregressive parameter as a statistically important one. Thus, in order to specify if the model can be used to predict the value, a normality test for rest distribution needs to be conducted. After their check, it seems that the rests of the model are distributed in accordance with a norm (chi-square(2)=3.594, p=0.16583). This model can be used for prognoses of this phenomenon in the following years.

Prognosis - A prognosis (fig. 2) prepared with the use of ARIMA model shows a downward trend of 2016, and then a stabilization of diesel oil consumption in Poland in the following years.

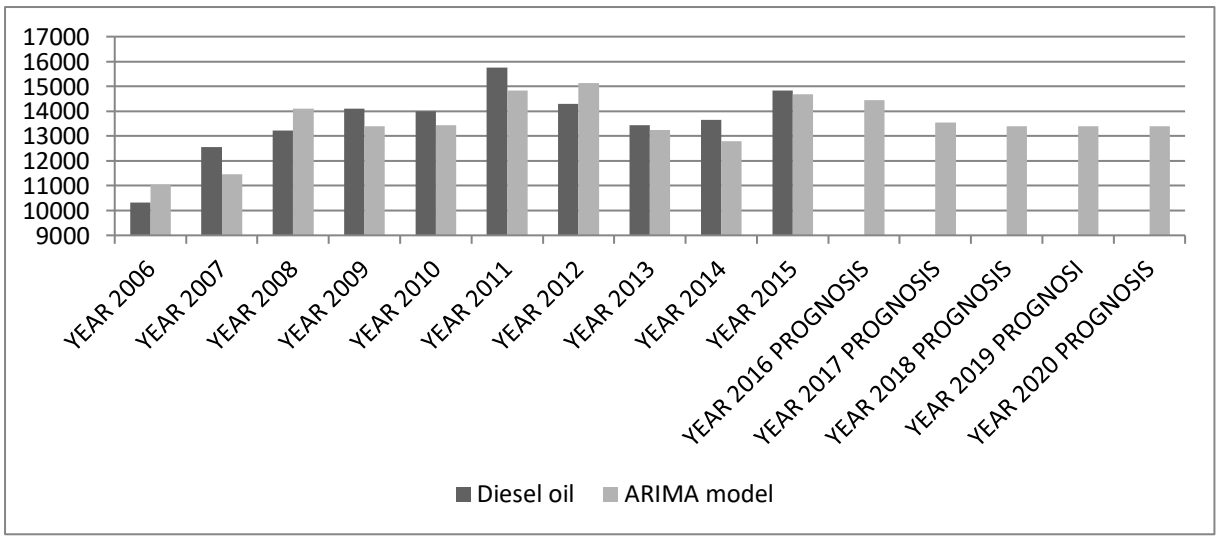

Figure 3 A prognosis of diesel oil consumption in 2016–2020 (thousands m3) (own analysis)

5.1.2. Motor petrol

A prognosis for motor petrol has been prepared based on the same rules as the prognosis for diesel oil. Due to the limited amount of data that can be included, only the results have been presented—a prognosis for the following years. In order to create the prognosis, estimation and optimization of model parameters have been considered.

Prognosis - The creations of the prognosis (fig. 3) with the use of ARIMA model shows a downward tendency in the consumption of motor coals in the following years.

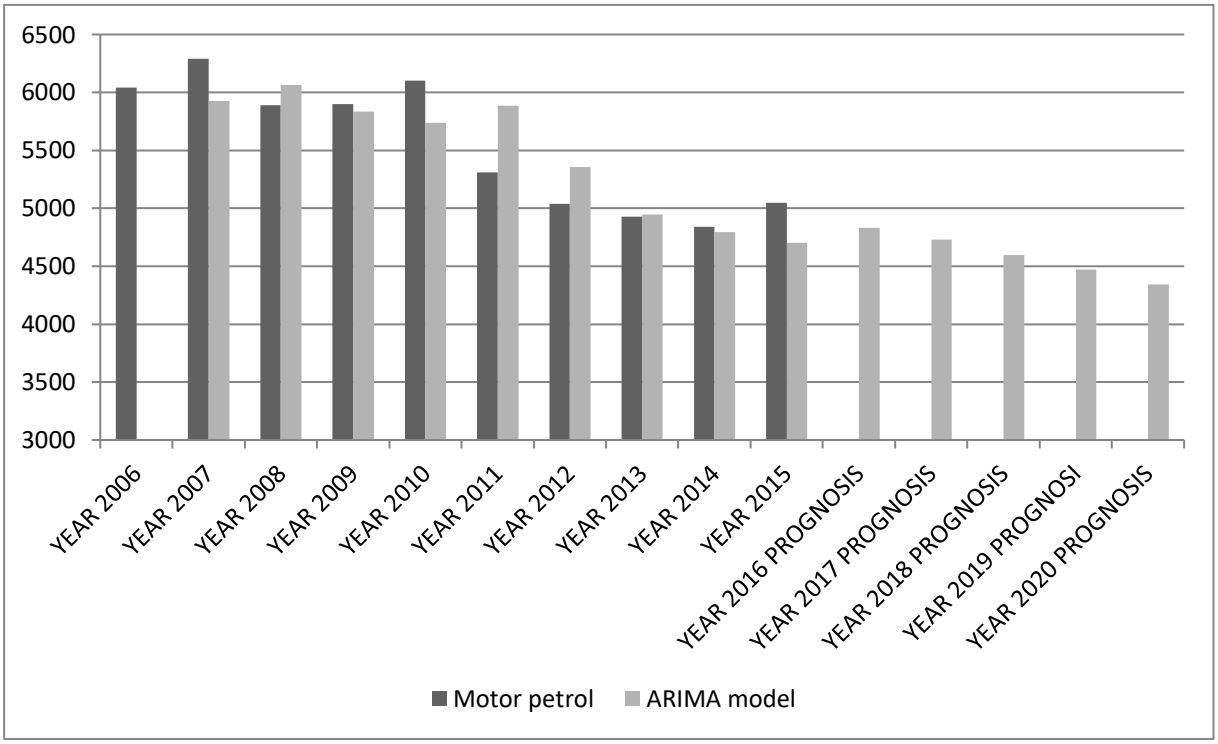

Figure 4 Prognosis for motor petrol consumption in 2016–2020 (thousands m3) (own analysis)

The prognosis of fuel consumption has been carried out based on ARIMA model and does not take NIT coefficient into consideration; NIT is to increase until 2020. As a result, strategic determinants related to NIT will have a positive effect on biofuel consumption.

5.2. Types of biofuel producers in Poland and their financial situation

This study included companies whose business activity included the production of biocomponents and liquid biofuels in Poland, presented in the article by A. Piwowar[6].

5.2.1. The size of companies producing biofuels in Poland

The analysis of the size of companies was carried out based on the classification of the European Commission (tab. 2). Companies classified as SME must be characterized by a number of employees lower than 250 and an annual turnover not exceeding 50 million euro, or a balance sheet total not exceeding 43 million euro[7].

[6] A. Piwowar (2015), *Produkcja biokomponentów i biopaliw ciekłych w Polsce – tendencje rozwoju i regionalne zróżnicowanie* (in:) *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu* XVII, vol.: 199. Abtrans S.A. has not been included in the study due to the lack of access to its financial data.

[7] Art. 2 of Annex to the 2003/361/EC Commission Recommendation

Table 2 Classification of enterprises as per the recommendations of the European Commission (Own analysis based on art. 2 of Annex to the 2003/361/EC Commission Recommendation)

Size of an enterprise	Number of employees	Net revenue from sales	Balance sheet total
Small	< 50	< 10 000 000 euro	< 10 000 000 Euro
Medium	< 250	< 50 000 000 euro	< 43 000 000 euro
Large	≥ 250	≥ 50 000 000 euro	≥ 43 000 000 euro

Based on the presented classification, the companies of the biofuel market in Poland have been categorized (tab. 3).

Table 3 Division of companies included in the conducted studies, based on their size (own analysis)

ENTERPRISE TYPE ACC. TO THE EUROPEAN COMMISSION	SMALL	MEDIUM	LARGE
PERCENTAGE SHARE	0.00%	55.56%	44.44%

Large enterprises make up for 44.44% companies on the biofuel market in Poland, and the medium ones—for 55.56%.

5.2.2. Selected financial results of biofuel producers

The first part of this study focuses on a general presentation of the main financial results of the companies which produced biofuels in Poland in 2012–2015 (tab. 4).

Table following on the next page

Table 4 Selected financial data of biofuel producers in Poland in 2012-2015 (Own analysis based on financial data from the Emis Intelligence database)

Enterprise size	**MEDIUM ENTERPRISES**				**LARGE ENTERPRISES**			
Profit and loss account position	**Net revenue**				**Net revenue**			
Year	2012	2013	2014	2015	2012	2013	2014	2015
Mean [thousands of PLN]	337.32	400.31	333.46	319.03	797.09	780.41	666.18	726.19
Median [thousands of PLN]	317.64	484.53	380.29	369.49	781.53	563.47	475.22	548.04
Profit and loss account position	**EBIT**				**EBIT**			
Year	2012	2013	2014	2015	2012	2013	2014	2015
Mean [thousands of PLN]	22.38	34.07	28.07	19.77	22.91	1.12	21.55	32.15
Median [thousands of PLN]	17.95	25.54	27.61	17.43	26.11	17.95	22.10	26.64
Profit and loss account position	**Financial costs**				**Financial costs**			
Year	2012	2013	2014	2015	2012	2013	2014	2015
Mean [thousands of PLN]	4.98	3.62	2.96	1.30	9.18	27.61	8.24	9.51
Median [thousands of PLN]	1.54	1.42	0.93	0.57	6.99	16.54	7.22	7.44
Profit and loss account position	**Net result**				**Net result**			
Year	2012	2013	2014	2015	2012	2013	2014	2015
Mean [thousands of PLN]	20.26	28.68	19.77	15.17	17.18	-19.61	27.23	24.00
Median [thousands of PLN]	15.19	14.34	21.81	13.82	11.53	7.86	8.96	19.49

Net revenues differ significantly with regard to the criterion of the size of an enterprise, whereas EBIT reaches similar levels for both groups of entities. Financial costs from the perspective of debt level (fig. 5) are higher in large companies. Net results do not differ significantly, and it should be emphasized that in 2013, net profit in large enterprises was the lowest in the whole studied period. The next part of the research took the structure of capital into consideration, based on the size of enterprises (fig. 4).

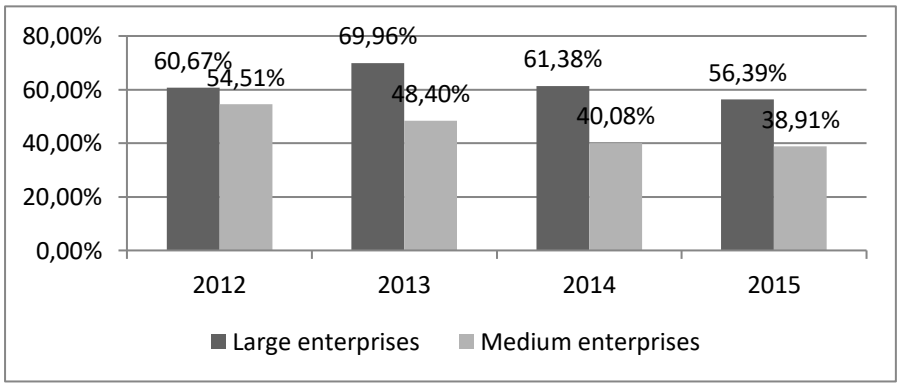

Figure 5 Percentage share of foreign capital in enterprises producing biofuels (Own analysis based on financial data from the Emis Intelligence database)

In medium enterprises, there is a smaller share of foreign capital[8] than in large enterprises. Thus, the next step in the study was to calculate the general debt ratio and check the solvency of companies by studying the current ratio in the groups of medium and large enterprises (tab. 5).

Table 5 Changes in the general debt ratio with the criterion of the size of enterprises (Own analysis based on financial data from the Emis Intelligence database.)

General debt ratio		
Statistics / Enterprise size	**MEDIUM**	**LARGE**
Mean	0.4548	0.621
Variance	0.0041	0.0024
Standard deviation	0.0735	0.0568
Pearson correlation: current ratio and general debt ratio	-0.73574	-0.5874
T - student	-3.577*	
Value of p	0.0117	

Current ratio		
Statistics / Enterprise size	**MEDIUM**	**LARGE**
Mean	1.6062	1.1279
Variance	0.1706	0.0416
Standard deviation	0.4770	0.2355
Pearson correlation: current ratio and general debt ratio	-0.7357	-0.5874
T - student	1.7982	
Value of p	0.1465	

**statistical validity for α=0.05*

Total debt ratio[9] is higher in large enterprises and makes up for 62.1%, whereas in medium companies it makes up for 45.48% of all. The liquidity level is higher in medium companies (1.6062) than in large enterprises (1.1279). There is a significant negative correlation of these two ratios, according to J. Guilford's interdependence classification (tab. 5). The last element is to calculate the cost of equity[10] and assign its level to the share of foreign capital for medium (fig. 5) and large enterprises (fig. 6).

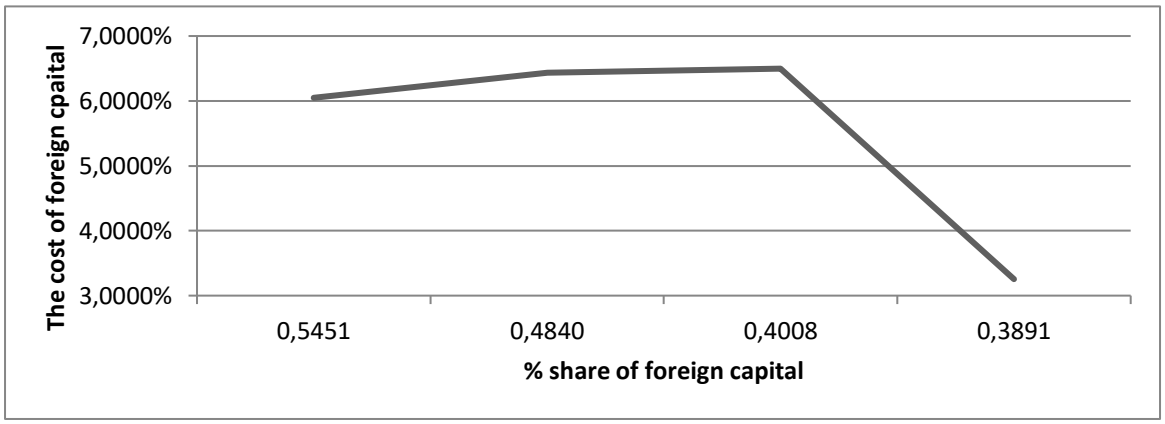

Figure 5 Percentage share of foreign capital in relation to the cost of foreign capital in 2012-2015 – medium companies (Own analysis based on financial data from the Emis Intelligence database)

[8] Calculated as: balance sheet total – own capital
[9] General debt ratio = total liabilities / total assets
[10] The cost of foreign capital = Financial costs / (Balance sheet total + equity)

In case of medium enterprises, with the share of foreign capital amounting to 54.51%, the cost of capital is 6.0480%. With the share of foreign capital amounting to 38.91%, the cost of financing amounts to 3.2540%.

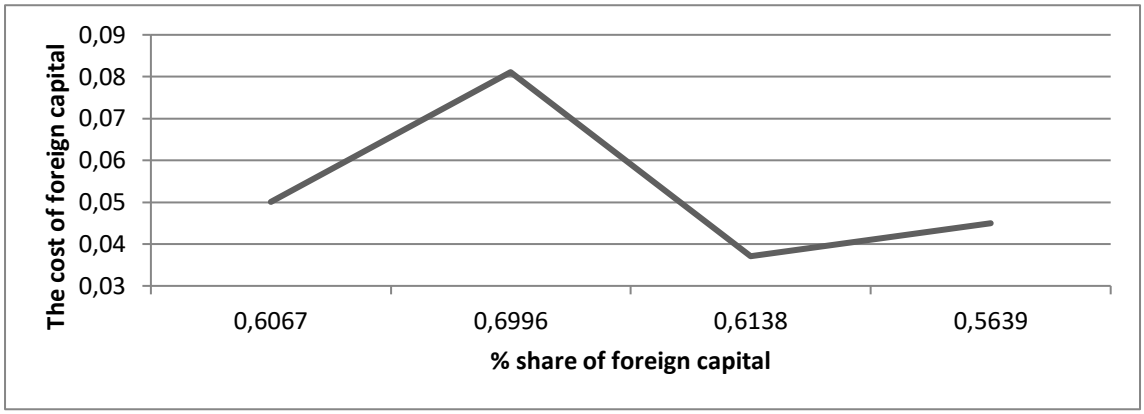

Figure 6 Percentage share of foreign capital in relation to the cost of foreign capital in 2012-2015 – large companies (Own analysis based on financial data from the Emis Intelligence database)

In case of large enterprises, with the share of foreign capital of 69.96%, the cost of financing equals 5.00%, whereas with the share of foreign capital amounting to 56.39%, the interest rate of obtained financing is 4.4900%. It shows that the cost of financing and the share of foreign capital was lower for medium companies.

6. CONCLUSION

The use of renewable sources of energy will continue increasing in the overall consumption of energy in the world. Striving for greater diversification of energy sources and the reduction of greenhouse gases emission will keep the tendency of growing share of biofuels, allowing for the reduction of fossil fuel usage at the same time. Studies have shown that the European market will continue to increase its usage of biofuels of the current generation and develop them with its growing involvement into the biofuels of next generations (H1). The prognosis performed based on ARIMA model shows the tendency of decreasing consumption of fuel in Poland to 2020. However, the need for biofuels depends on national consumption of fossil fuels, regulatory frameworks, and actions related to environmental protection and supply diversification, as well as on national economic situation. The position of producers is stable. Financial data indicates that investments into biofuels of next generations require significant financial resources and constitute strong capital burden for the producers. Their capital, when compared to the costs of investments, is relatively small. Thus, additional sources of financing or programs supporting the actions aiming at introducing innovative solutions and new generations of biofuels will be necessary (H2). Such support may result in the increase or even a highly dynamic development of the use of renewable resources when compared to the overall consumption of fuel in the future.

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APPENDIX

Annex 1. The list of enterprises included in the study presented in the article:

Enterprise	Size
Euroservice Sp. z o.o.	Medium
Bioagra-Oil S.A.	Large
Wratislavia Bio Sp. z o.o.	Medium
Orlen Południe S.A.	Large
ADM Malbork S.A.	Medium
Destylacje Polskie Sp. z o.o.	Medium
Bioagra S.A.	Large
Lotos Biopaliwa Sp. z o.o.	Medium
Akwawit-Polmos S.A.	Large

HOW DOES THE RUSSIAN YOUTH PERCEIVE CORRUPTION

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ABSTRACT

The purpose of the study is to examine how Russian youth perceive corruption. Design/methodology/approach - Using multiple regression analysis, the study tests the hypothesis that corruption is closely linked to public servants and power in the perceptions of Russian youth. The study involved 374 young Russians. Their average age was 22.2 years. The Free Associative Experiment was chosen by us as a method of data collection.

Findings - Findings indicate that higher corruption perception is associated with such concepts as 'bribe', 'money', 'power'. It was revealed that the word 'Members of Parliament (MPs)' comes to the Core of Russian youth's ideas about corruption.

Originality value - As far as the authors are aware, this study is the first to examine Russian youth perception of the corruption from a position of prototypical analysis.
Keywords: *Corruption, corrupt official, social perceptions, youth, prototypical analysis, content analysis*

1. INTRODUCTION

The corruption is one of the most acute and pressing problems of modern Russian society, which requires careful and comprehensive consideration. The multifaceted nature of modern corruption leads to a different understanding of its essence by Russian youth. The media actively informs us about major corruption scandals and exposures of high-ranking corrupt officials. Thus, a very important psychological function is performed which results in a reduction of some tension in the society. These reports led the authors to ask the following questions. What reflection do in the minds of young people find images broadcast in the media and discussed in everyday situations? How does this apply a simple everyday experience of a young man? How is the information on corrupt officials and corruption in general interpreted at the ordinary level? What do young people think about corruption? What is not the corruption in the opinion of Russian youth? The theory of social representations by S. Moskosvi [1] is used in the studies of modern scientists to determine the subject of various components of the internal and external world. The prototypical analysis by P. Verges [2] allows us to distinguish the nuclear-peripheral structure of the ideas of the Russian youth about corruption. The authors of this article use these tools. In addition, the authors investigate the latest publications indexed in international databases.

2. BRIEF LITERATURE REVIEW

A major contribution to the study of corruption perception was made by works B. Olken [3], J. Davis & J. Ruhe [4], N. Melgar, M. Rossi & T. Smith [5] and other researchers. D. Redlawsk & J. McCann find two distinct evaluative dimensions: corruption understood as lawbreaking, and corruption as favoritism [6]. The women role as more effective one at combating corruption is examined in the works by T. Barnes, E. Beaulieu & G. Saxton. [7]

The influence of teenagers' strong social bonds on undermining delinquency is investigated by E. Gentina, T. Tang & Q. Gu. [8] P. Wilhelm argues that courses aimed at rejecting corruption are also important for students, like other disciplines [9]. Corruption in emerging countries is investigated by I. Lourenco, A. Rathke, V. Santana & M. Branco [10]. The corruption in contemporary Russia is described in the works T. Gerber, S. Mendelson [11]. Among Russian researchers we choose the works by E. Levchenko & A. Prodovikova [12], I. Bovina [13], M. Bilinskaya [14], E. Olimpieva & O. Pachenkov [15], E. Petrova [17]. The authors have a number of publications about corruption in Russia too. [18, 19] We have developed a categorical apparatus that is adequate to the goals and objectives of this study on the basis of the publications went owned above. Some provisions of these publications and the category of content analysis have been correlated with the content elements of the study.

3. METHODOLOGY

The study involved 374 young Russians. Their average age was 22.2 years. The Free Associative Experiment was chosen by us as a method of data collection. We asked respondents to express at least five associations to words 'corruption', 'corruptor', 'incorruptibility' and 'bribe'. The respondents presented 1 758 associative words to the word 'corruption', 1 644 associative words to the word 'corruptor", 1 693 associative words to the word 'incorruptibility', 1 754 associative words to the word 'bribe'. We used two methods of processing the data:

(a) The Method of prototypical analysis of P. Verges;
(b) The Content analysis of the entire array of data received.

The study was conducted in Russian among the Russian-speaking youth environment. Therefore, the authors assume the possibility of some distortion of the results obtained, as a result of the translation. However, the foregoing does not distort the essence of the results obtained.The structure of representations is distinguished by two parameters in accordance with the technique of P. Verges:

(a) the rank of association;
(b) frequency of associations.

Four areas are obtained when combining these two parameters:

1. The Core of representations (low-rank and high-frequency associations);
2. The Potential change zone 1 (low-rank and low-frequency associations);
3. The Potential change zone 2 (high-rank and high-frequency associations);
4. The Peripheral system (high-rank and low-frequency associations).

The elements were moved to the core of the views from potential change zones under transformation. [12] The boundaries between areas was determined on the average rank calculation basis. [13]

4. RESULTS

4.1. Representations about corruption

In total the respondents expressed 1 758 associations with the notion of 'corruption', which on average is 3.99 concepts. The dictionary of concepts consists of 440 words. We analyzed the most frequently encountered associations, which were mentioned by 5% of respondents. This part accounted for 47% of the total number of proposed associations. The average rank of the associations is 2.99, frequency is 27. The core of the concept of corruption is formed by elements 'bribe', 'money', 'power', 'an official' and 'steal' (Table 1).

The potential zone of change is represented by the following elements: ‘state’, ‘MPs’, ‘Russia’, ‘deception’, ‘crime’, ‘bribery’, ‘injustice’. Peripheral representation system includes ‘prison’, ‘government’, ‘police’, ‘infringement’, ‘corruption’.

Table 1 – The elements forming Core and Periphery of the notion of Corruption

Frequency of associations	Average rank of associations	
	< 2.99	**≥ 2.99**
≥ 27	bribe (148; 1.91); money (146; 2.30); power (83; 2.88); an official (83; 2.88); steal (37; 2.47)	deceit (65; 3.09); crime (42; 3.26); bribe (28; 3.25); injustice (27; 3.70);
< 27	state (24; 2.79); deputy (22; 2.77); Russia (19; 2.89)	prison (23; 3.87); government (22; 3.05); police (20; 3.30); infringement (20; 3.20); venality (19; 3.26)

The Core of the representations of corruption as a whole determines the structure of the whole of Russian youth view. The corruption through the eyes of the current youth is primarily a bribe in the form of money, which is associated with the authorities in a broad sense and is concretized with officials. The word ‘steal’ which gives the final meaning of corruption is in the core of representations. Since these words are in the nucleus, it means that this is dictated by the values and norms of the social group. In the potential zone of change are the words that define membership. For example, the words ‘a state’ and ‘Russia’. In the scientific literature, one can find the position [14] that the elements falling into this zone reflect the position of the minority. In the potential zone of change, there is a word that defines corruption. This is the word 'bribery'. It is extremely important for us. Indeed, young people understands that corruption is a crime, deception and injustice. Thus, the Russian youth gives a moral and public assessment of this phenomenon. The Peripheral zone is associated primarily with individual experience and memory of subjects. Here we see the words that in our opinion can be explained by the influence of the media. For example, our study was conducted at a time when the trial on A. Ulyukaev former Russian Minister of Economy was held, who was accused of bribery and who was convicted. The Ulyukaev's case explains the appearance of such words as ‘government’, ‘police’, ‘infringement, ‘venality’, ‘prison’ in the Peripheral zone.

4.2. Representations about the corrupt official

In total 1 644 associations with the concept of ‘corrupt official’ expressed an average of 3.4 concepts. The dictionary of concepts consists of 481 words. We also analyzed the most common associations that were mentioned by 5% of respondents. This part was 37.5% of the total number of proposed concepts. The average rank of the associations is 2.66, the frequency is 41. The Core of the representations about corrupt official is formed by such elements as ‘an official’, ‘bribe taker’, ‘criminal’, ‘MPs’ (Table 2). The Potential zone of change is represented by the following elements: ‘deceiver’, ‘money’, ‘power’, ‘bribe’. The Peripheral representation system includes: ‘thief’, ‘prison’, ‘intruder’, ‘politician’, ‘venality’.

Table 2 – The elements forming the Core and Periphery of the notion of the Corrupt official

Frequency of associations	Average rank of associations	
	< 2.66	**≥ 2.66**
≥ 41	an official (125; 2.21); bribe taker (77; 2.10); criminal (64; 2.28); MPs (47; 2.13)	money (68; 3.06); power (45; 2.73); bribe (41; 2.83)
< 41	deceiver (22; 2.55)	thief (39; 2.66); prison (25; 3.44); intruder (23; 2.78); politician (21; 2.81); venality (20; 3.05)

As one can see, the kind of activity or position views gets in the Core of the representations about of the corruption again. For example, 'an official', 'MPs'. We explain the presence of the word 'bribe-taker' in the Core by the lack of a single unambiguous interpretation of the concept of corruption in the media and the identity of these concepts. According to the youth, the corrupt official is a criminal. But at the same time, we do not find a large number of characteristics of the corrupt person and moral assessments. Characteristics of the corrupt person's personal qualities appear in the Potential zone of change, where the minority's opinion is reflected. This minority considers the corrupt official as a deceiver. In general we got the following picture: a corrupt official is an official who takes money, deceives, violates the law and possibly goes to jail. In our opinion, this is perceived by young people as the reality. We can also conclude that young people have no desire to change anything. We confirm this conclusion by the results of the content analysis, which was carried out after analyzing the nuclear peripheral structure of Russian youth's notions of corruption. Content analysis allowed us to examine 100% of the empirical material obtained in the above associative experiment. We developed the 7 components system for analyzing the array of obtained associations. We divided all associations of Russian youth about corruption on the following grounds:

(a) Essence and its Expression;
(b) Professional Sphere of Activities;
(c) Motivation;
(d) Moral and Social Evaluation;
(e) Occupation and (or) a Profession and (or) Names;
(f) Phenomenon Characterization;
(g) Legal Assessment.

At the next stage, we distributed the associations using the expert method according to the categorical grid. The category of Essence of corruption and its Expression accounted for 35% of respondents' answers (Figure 1).

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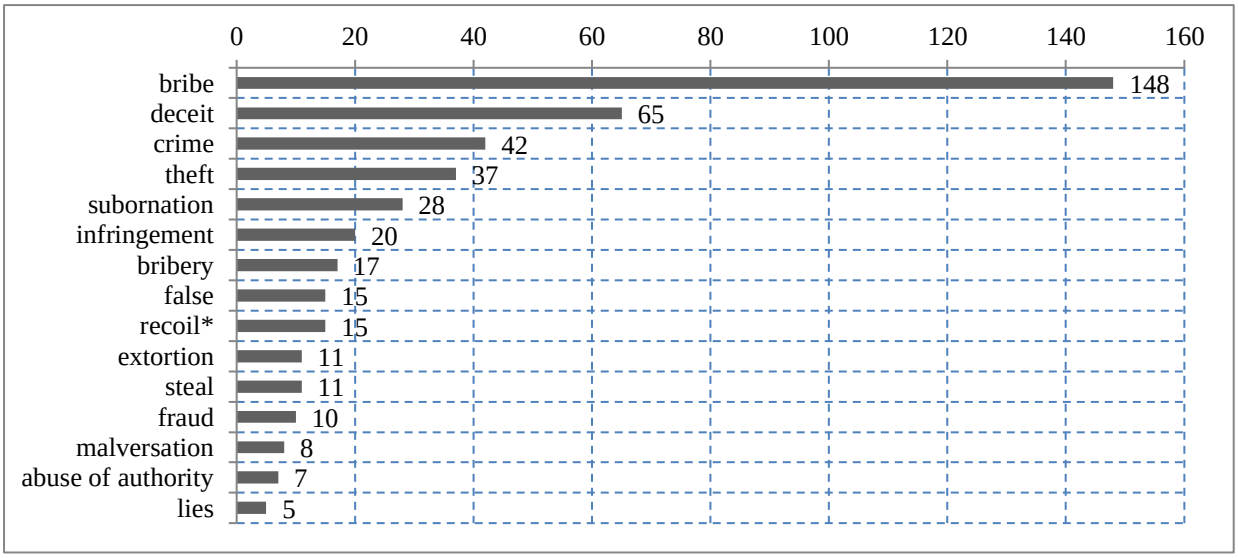

Figure 1 – The results of the content analysis of the word 'corruption' by category of Essence and it its Expression.
**Note: In Russian, a non-translatable word is used [otkat]*

The category of Professional Sphere accounted for 16 % of respondents' answers (Figure 2).

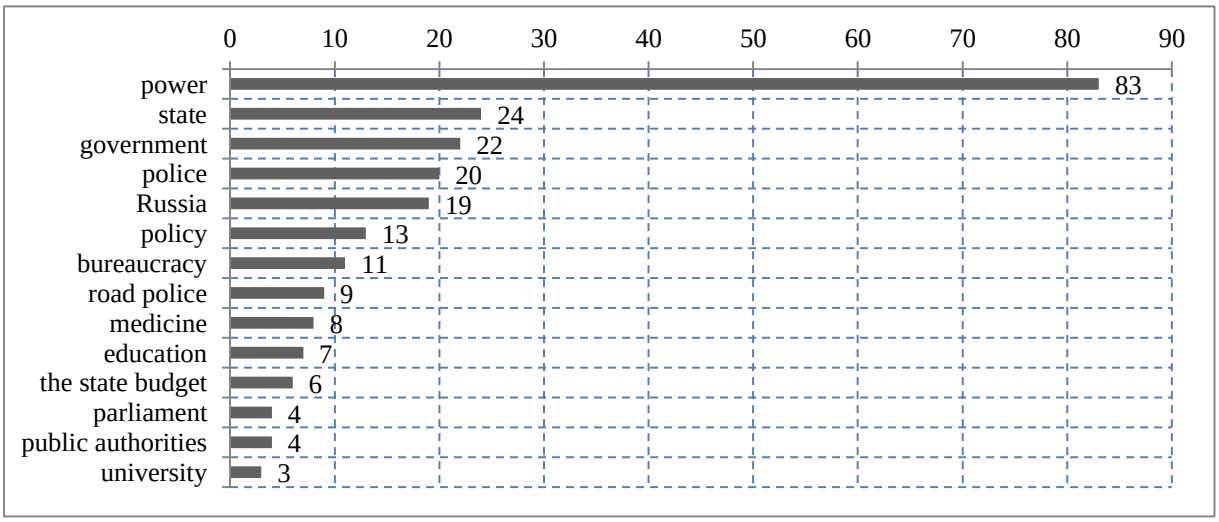

Figure 2 – The results of the content analysis of the word 'corruption' by category Professional Sphere.

The category Motivation accounted for 12 % of respondents' answers (Figure 3).

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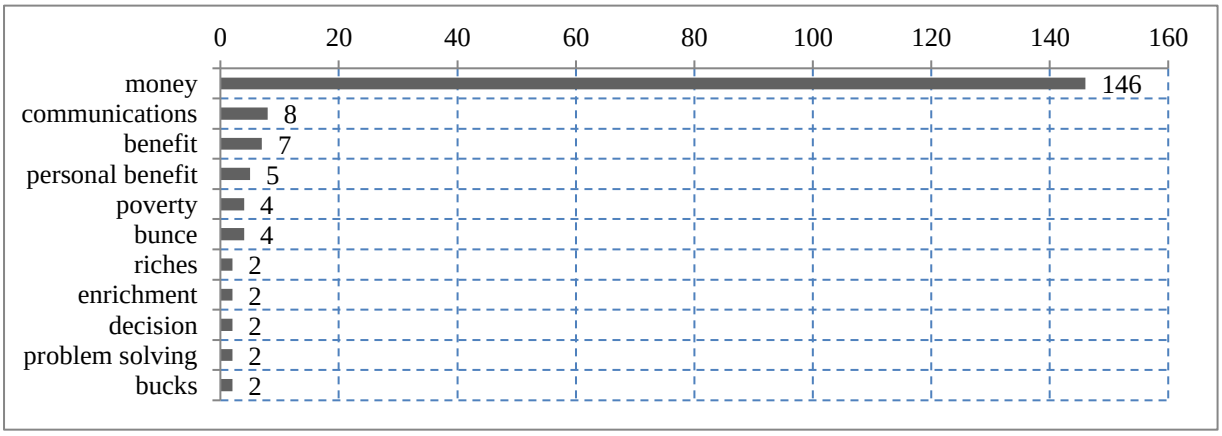

Figure 3 – The results of the content analysis of the word 'corruption' by category Motivation.

The category Moral and Social Evaluation accounted for 10 % of respondents' answers (Figure 4).

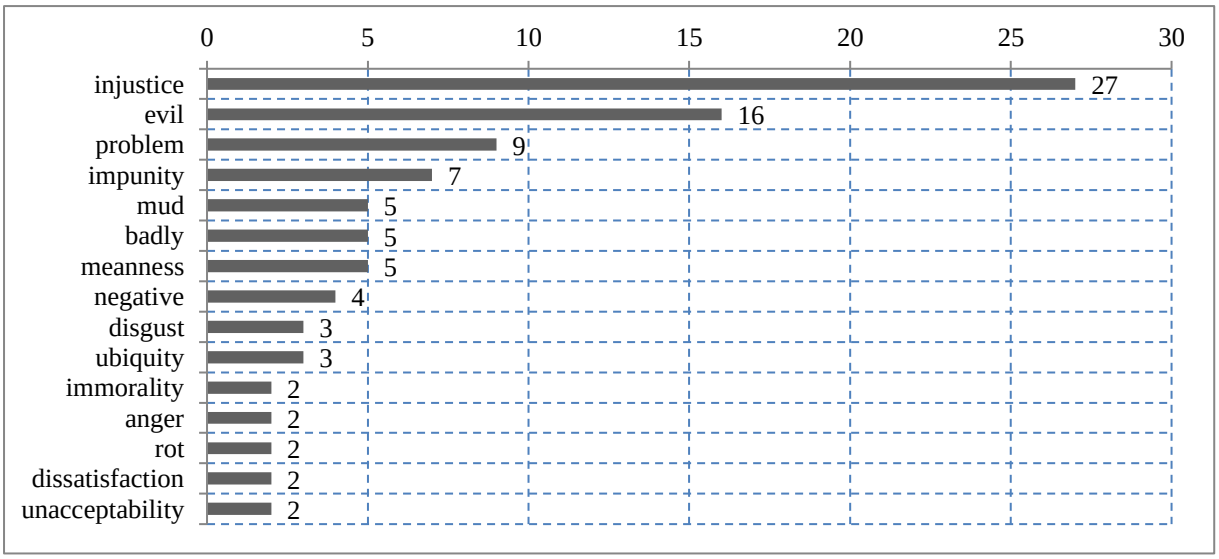

Figure 4 – The results of the content analysis of the word 'corruption' by category Moral and Social Evaluation.

The category Occupation and (or) Profession and (or) Names accounted for 10 % of respondents' answers (Figure 5).

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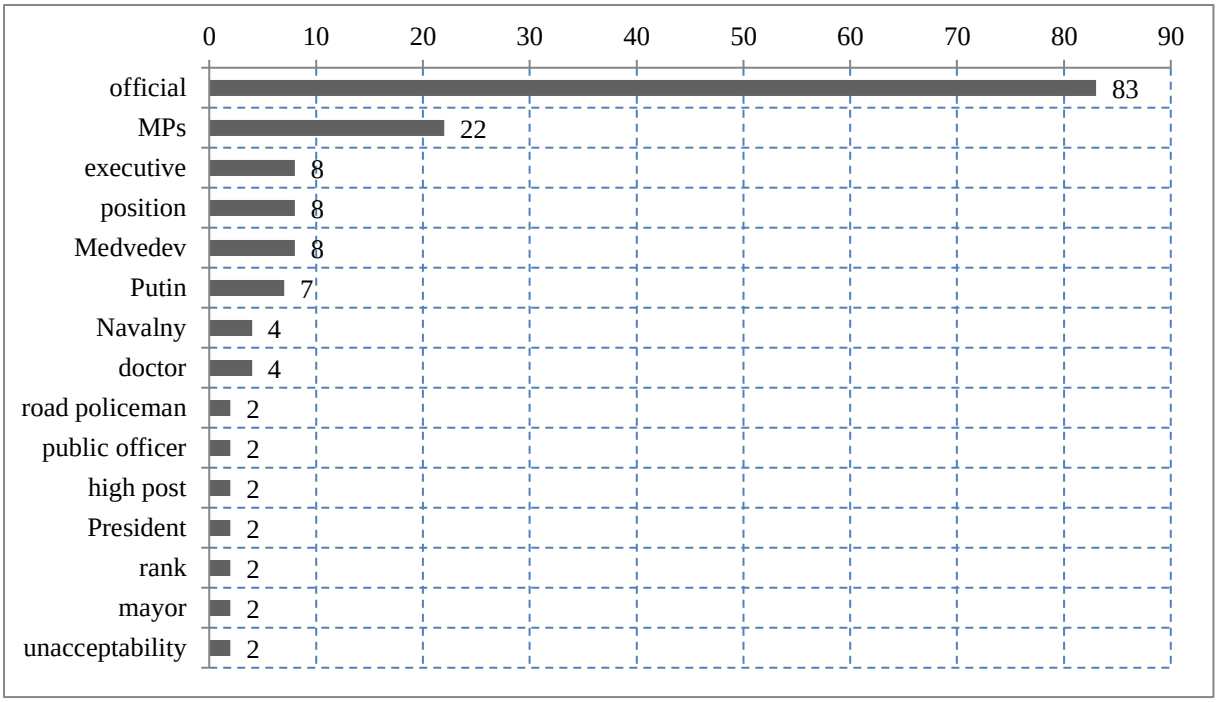

Figure 5 – The results of the content analysis of the word 'corruption' by category Occupation and (or) Profession and (or) Names.

The category Phenomenon Characterization accounted for 9 % of respondents' answers (Figure 6).

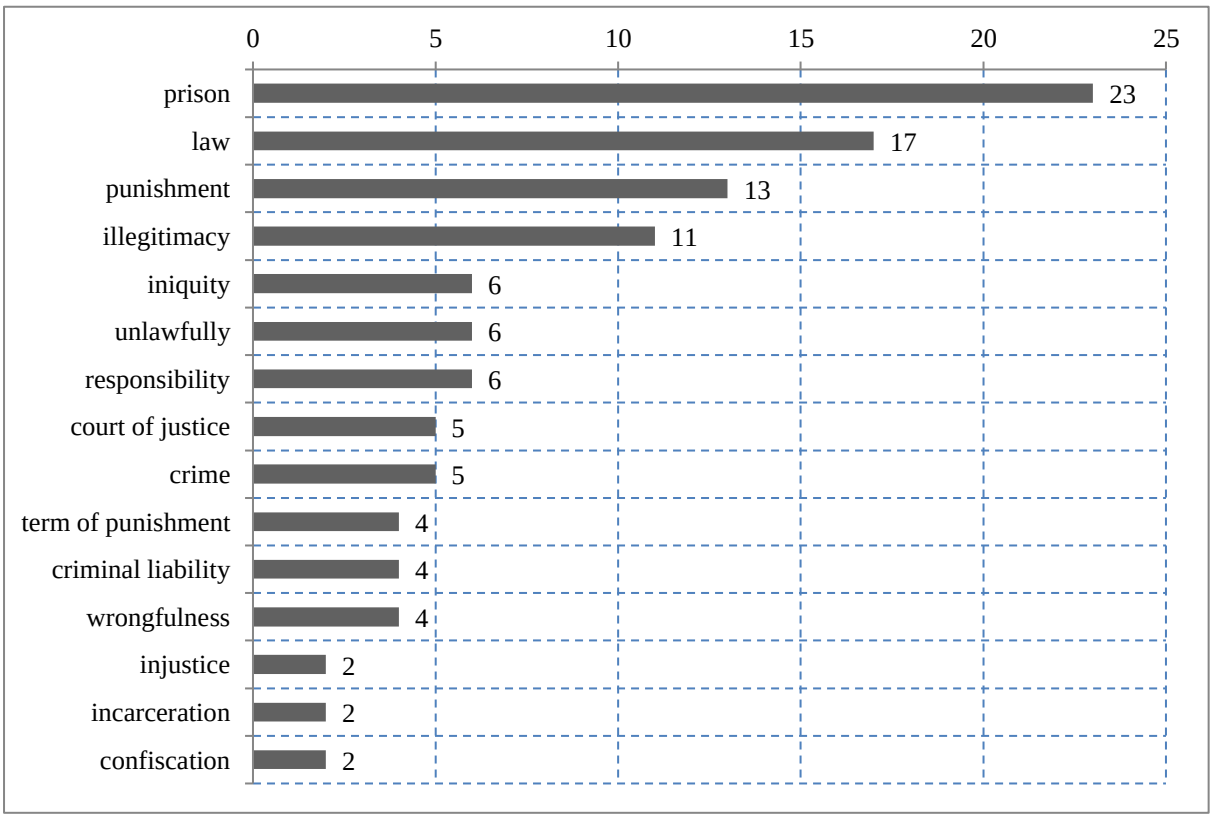

Figure 6 – The results of the content analysis of the word 'corruption' by category Phenomenon Characterization.

The category Legal Assessment accounted for 8 % of respondents' answers (Figure 7).

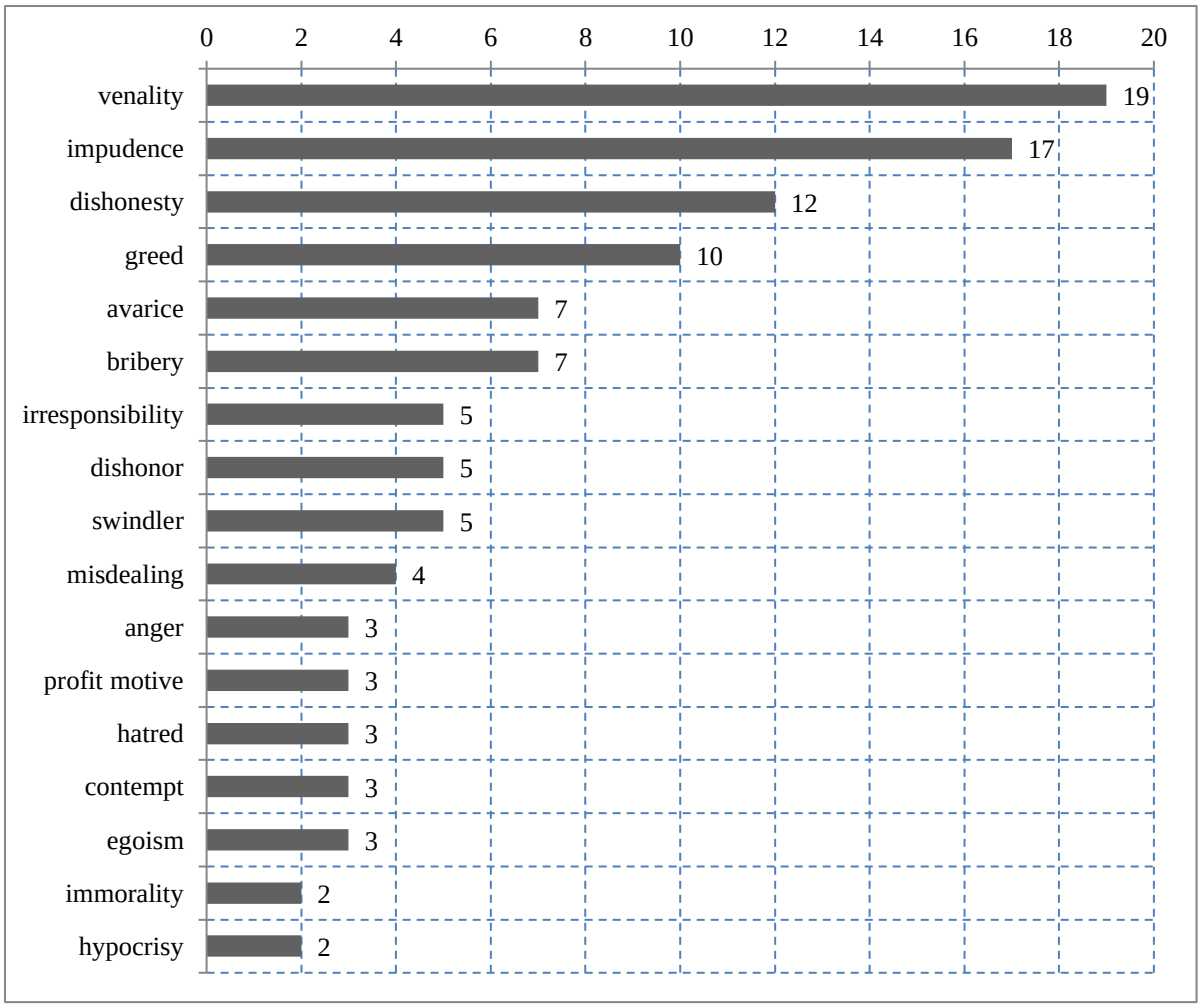

Figure 7 - Results of the content analysis of the word 'corruption' by category Legal Assessment.

Here we have observed the following picture. The corruption is associated primarily with actions that express it. The corruption is associated, in the second place, with areas in which, according to young people, corruption is most common. The motivation in the form of money and connections goes to the third place in popularity. By the way, many experts also do not determine monetary motivation as the main component of the problem [15]. The content analysis showed that the occupation and profession does not take the first place in the definition of corruption. But, of course, corruption is associated with power-vested persons. Our conclusion confirms the researchers opinion that Russian youth associates corruption only with the state and the highest echelons of power and in most cases does not associate it with their daily life within their social status. [16; 17] The moral evaluation and the personality characteristics and legal assessment, as in the prototypical analysis, have gone to the background, but nevertheless there are places for them to exist. The content analysis of associations to the word 'corrupt official' showed that respondents define the corrupt person through various negative personality characteristics. Next is the occupation, after the essence of the activities of the corrupt official, then the scope or Professional Sphere. The Moral and Social Evaluation, along with legal assessment, as well as in the issue of corruption, is not decisive. The actual motivation of the 'corrupt official', also has small weight in the definition of this concept (Table 8).

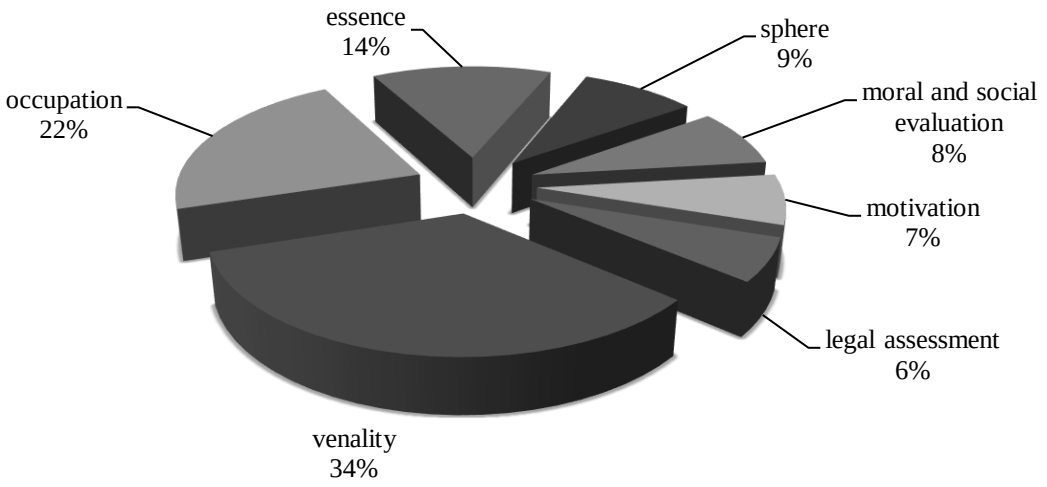

Figure 8 - Results of the content analysis of the word 'corrupt official'.

5. CONCLUSION

The P. Vergès's prototypical analysis and the content analysis gave us a very complete picture of social perceptions of corruption and corruptors. The social perceptions of corruption are specified in the minds of Russian young people through the essence of corruption, through the acts in which it is expressed, corruption is associated with power and high office. The young people define some kind of material motivation for committing corrupt acts. The study also showed that a negative moral assessment of this phenomenon is not a position of the majority. There is no mass striving to fight this disastrous phenomenon. The social perceptions of the corrupt official are specified in the minds of youth through the negative characteristics of the corrupt person's personality. A corrupt is associated with an official or MPs, with power and money. The public and the moral assessment of the corrupt official is extremely negative. The results of the study are of prognostic importance for understanding the attitude of modern youth to the phenomenon of 'corruption'.

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COMPETITIVE RIVALRY IN THE COFFEE AND TEA PROCESSING INDUSTRY

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ABSTRACT

Hypercompetition and competitive dynamics are essential for understanding how dynamics and competitive intensity of business environment lead to temporary competitive advantage. Theoretical approach of competitive dynamics shows that relationship between firm´s strategy and firm performance primarily depends on firm strategic behavior, but also on competitors´ behavior and interactions between them. Competitive dynamics is a phenomenon that is becoming more evident in many industries, even in those that were considered relatively stable until recently. Firms' advantages are becoming more temporary in nature, due to the various disturbances occurring in the business environment and given the fact that competitor activity is becoming more frequent and firms must continuously develop and find new strengths and constantly monitor market changes and competitor moves. Although a growing number of empirical studies dealing with the issue of achieving and maintaining competitive advantage in an era of hypercompetition could be seen, they were primarily focused towards analyzing competitive dynamics and its impact on the financial performance of the firms. Thus, this research will show how the environment of industry breaths, but even more important how competitive dynamics in coffee and tea processing industry works. Furthermore, the secrets of great market position of the industry leader will be examined. Based on the strategic analysis it can be concluded that the key factor of success in Croatia, but also in Europe, including the global coffee and tea processing industry, lies precisely in the power of having strong recognizable and established brands, which also affects the loyalty of customers.

Keywords: *competitive advantage, competitive rivalry, hypercompetition, industry analysis, industry profitability*

1. INTRODUCTION

Building sustainable advantage under intense competition is almost impossible, leading to irrational use of scarce resources that are needed in today's environment (D'Aveni, 2010). In an environment in which every advantage is quickly neutralized, the attempt to maintain the existing advantage obstructs the development of new ones. Traditional models of strategy and advantage achievements do not take into the account dynamic environment of competition nor the constant appearance of new competitors. Usually they assume that the companies and the environment in which they operate are simple and clear, recognizing the specific causes and effects. However, today's environment is far from being stable and predictable.

Markets are in constant interaction and imbalance, whereby the company results are only partially determined by strategic decisions (Miller, 1990). In such an environment, business success stems from interaction with other companies where strategic decision-makers play an important role in developing the overall competitive environment. The assumption stands that there is no sustainable advantage but just the opposite - that competitive advantage and success will lead to the reaction of competitors and their imitation which will ultimately be resulted with the disappearance of the advantages (Daraboš, 2015).

Therefore, a large increase in competition between companies can be extracted as one of the most important characteristic of the dynamic environment where its consequence is a short period of time in which ideas are realized and even a shorter period of time to make decisions. Above all, the speed at which data, information and knowledge circulate among competitors has reached unsuspected levels. Enterprises that are able to respond in a short time to market demands strengthen their market power and generate advantages; those that can do it even faster will generate even greater market power and gain greater advantage over competitors (McNamara, Vaaler i Devers, 2003; Thomas, 1996; Young, Smith i Grimm, 1996). In such circumstances, there is a tendency to increase the cannibalization of own products by the companies themselves, increased product launches, shorter product design cycles, shorter product life cycles, increased commercialization of new technologies, a shift in product and market definition, and the emergence of brand new business models (Wiggins i Ruefli, 2002).

Market and technological changes ask for rapid adaptation of firm capabilities and routines so it can respond to market demands and/or new technologies (Daraboš, 2015). In that regard organizational change is necessary, but the strategic decision-makers and change initiators in a firm are often not capable of transforming the old routines and capabilities of firm, since they themselves are strongly influenced by the old skills, habits, models, routine and information (Henderson and Clark, 1990). Managers can identify and use opportunities that will result in a competitive advantage, but to preserve acquired positions and build long-term sustainable competitive advantage, through entrepreneurial behavior, (Daraboš, Prester and Tipurić, 2015) it is necessary to strategically manage the resources and the capabilities of the firm (Ireland, Hitt and Sirmon, 2003).

2. INDUSTRIAL ENVIRONMENT ANALYSES

The industry can be defined from two angles, supply and demand. From the supply point of view one industry is made up of all companies that offer a range of products or services with important common product characteristics and produce with similar or the same technological processes. On the other hand, from the demand point of industry is made up of all the companies whose products are similar and mutually interchangeable. Analysis of an industry provides us a structural analysis and a display of an individual industry, it's participants and basic characteristics (Fleisher and Bensoussane, 2003).The main purpose is the attractiveness ratings of individual industries, respectively the foresight of the average level of long term profitability of a firm in industry, which is measured by the rate of return on invest capital (ROI). The basics of industrial analysis are based on the assumption how profitability of an industry is not random, nor is it totally dependant of special influences inside the same industry, but it is at least one part under industrial structure. The four key elements of industrial structure that affects profitability, but also competitiveness of an industry are: incoming and outcoming barriers, information, difference in implementation and industry concentration (Goett, 1999).

Industrial concentration exists when an enterprise or a small number of companies control most of the outputs in an industry. For the coffee and tea processing industry in Croatia, we can say it is consolidated concentrated industry. Of the total number of companies operating in this sector in Croatia, 68 of them, only three are medium-sized companies and one large, Franck, whose market share is over 57%. It is obvious that a small number of companies control a large part of output in this industry. The main features of such an industry are that actions of an enterprise affect the actions and profitability of other industry participants and their market shares. The indicator of the industrial concentration of CR1 is in fact the indicator of the market share of the market leader. In this industry, the indicator is CR1 57.88%, while CR10 or aggregate share of the 10 largest companies is 89.16%.

Entities working in the coffee and tea processing industry in Croatia do not have great fears of newcomers because the input barriers in this industry are quite high. The biggest problem faced by companies who wish to participate in this business is great investment. There are great capital requirements and capital investments in the construction, equipment of the product line and standardization of production. One of the input barriers is also the distribution channel network. All companies operating in the business have a built-in distribution network, from their partner distributors to retail chains where their products find their ultimate customers, and the construction of such a long-lasting relationship lasted for a long time, meaning that the newcomers would take a long time to reach their competitors level and become competitive in the market. Another major obstacle is the tradition of our analyzed company. Consumers who have been using products of a certain brand for many years, identify that product with that brand and this is a problem for new businesses in the industry. Although the target market increasingly includes the younger population, coffee is mostly consumed by older people, who cultivate tradition and are reluctant to try out something new so new companies would not find the most fertile soil in this industry. One of the barriers is also a small space and opportunities for product differentiation and differentiation from competitors, as businesses that operate and deal with coffee and tea processing cover all segments and opportunities within the business. Croatia is not a country for growing coffee, so raw materials have to be imported, most often from Brazil or African and Asian countries. The barrier to entry into the business is also a special tax on coffee imports, which includes 5 kn per kilogram of raw coffee and it increases the price of raw material. From the exit barriers, some companies could be prevented to leave the industry because of the return on investment. Namely, as the industry requires large capital investment, which in most cases carries long-term loans while it does not meet its obligations and until the funds are returned, the company will do business and strive to settle the obligation.

For the purpose of analyzing the wider environment of Franck Plc. a PEST analysis was made which provides information on the impact of numerous external factors on the business of the company. Through the PEST analysis, the company identifies all the opportunities and threats from the macro-environment in which it operates and can in a good way look at the conditions and the situation in which it operates. PEST analysis integrates into a company's strategy that needs to be adjusted to market conditions and needs to provide a better response to consumer demands.

Table following on the next page

Table 2: PEST analysis of Franck Plc.

Political and legal factors	*Economic factors*
• changes made after Croatia's entry in the EU • EU legislation on the food industry • consumer rights and the process of informing consumers • the impact of politics on business • transparency and security of legislative frameworks • required certification for business in the food industry • the legislation of related industries such as trade and the chemical industry	• the impact of globalization • the influence of the region in which the enterprise operates • the impact of supply and demand on the market - the possibility for increased product placement • the price trend of food products on the market - the price rises • the impact of changes in raw material prices • the impact of the economic situation in Croatia - recession • special food characteristics - perishability, short duration • the impact of market opening - the arrival of foreign competitors
Socioeconomic, ecological and media factors	***Technological and scientific factors***
• nutritional habits of customers • product position on the domestic market • life expectancy • lifestyle of the population • consumer awareness, strengthening awareness about proper nutrition, GMO products and nutritional additives • attachment to products of domestic origin • public attitudes towards certain food product places the product in consumer's consciousness • the consumer's interest in the origin of the product	• introduction of new technologies in the food industry • modernization of production processes • contemporary packaging products • degradable packaging and packaging of secondary raw materials • investment in innovation in Croatia - an increasing emphasis on investing in new technologies and a new way of production • introduction of new information systems in business operations • biotechnology that influences the development and quality of new products

As an example of a food company like Franck, we can see that PEST analysis is one of the key steps in developing a business strategy. Political and legal factors in the industry in which Franck operates have never been more complex - there is an increasing number of regulatory measures and laws that a company must respect and within which it must act. By joining the EU, many of the frameworks have been supplemented, additional constraints have been introduced for manufacturing activities, the food industry is under pressure to meet strict rules. The key question is what will be the price of the products in the future. The cost of the end product, as indicated in the table, is influenced by many economic factors. The issue is entering the new market competition and the level of demand for the offered products. Apart from competing products that can greatly shake Franck's product position, the question is about disposable income of consumers - the worse financial situation of consumers determines product selection.

Thus, it is clear that the influence of socio-cultural factors in this industry is extremely large. Standard of living and lifestyle of consumers determine the demand for a particular product. In order to meet the increasingly demanding consumer who wants to get the best quality ratio for the money invested, it is necessary to constantly invest in the production and raw materials to remain a leader in the market.

3. STRATEGIC ANALYSIS OF COMPETITIVE RIVALRY IN INDUSTRY

For Croatian coffee consumers the social aspect is a very important element. Some independent sources estimate that Croats spend nearly five hours a week in cafes. The relatively low price of cup of coffee in cafes also contributes to the popularity of coffee. Coffee breaks in leisure time are seen by consumers as a very pleasant way to spend their free time. The popularity of coffee as a social drink surpasses its consumption at home, which is even more prominent in Croatia. The traditional Turkish type of coffee dominates at home, and is uncommon in catering. Coffee demand, including food services, is growing despite wider economic situations.

Despite being fairly pragmatic and clear when it comes to coffee selection, Croatian consumers like to indulge in occasionally trying some other brand new coffee. Consumers are willing to spend a few cents more, especially when such products are taken as gifts when visiting relatives or friends. The main reasons for retaining the competitive advantage and domination of domestic processors and manufacturers on the Croatian market after the opening and liberalization of the market are the length of market presence - domestic producers are present much longer on the market than some of the multinational companies that have emerged; and a good price / quality ratio that provides customers. The main target group of these companies is older consumers, who have a conservative approach to choosing their favorite brand.

Competition in this environment and industry in Croatia is limited and Franck Plc. kept the leading position of coffee makers and processors for Croatian consumers. Despite leadership, Franck continues to launch new products on the market and improve those old ones. The company is and remains the biggest initiator of new trends in the industry. The biggest competitor on the market is the Atlantic group who has a leading position in the countries of the former Yugoslavia and is trying to hit the first place in Croatia, but due to Franck's long tradition in our country and the taste quality of its product assortment, it is not yet likely to reach the position of the market leader. In addition, there are also Julius Meinl, Anamarija Coffee, Arabesca, and others. Local competition leaves little room for entry of multinational companies into the Croatian market and a very small market share that someone could take.

Table 3: The share of companies in the Croatian market of coffee

Company	2012	2013	2014	2015
Franck/Adria Snack Company	34,50%	33,90%	33,80%	40,10%
Konzum – brand	8%	8,70%	8,80%	9%
Nestle(Nescafe+Cappucino)	13,10%	14%	14%	13,90%
Atlantic Group	6,10%	6,60%	6,60%	6,60%
Anamarija	4,10%	4,20%	4,20%	4,30%
Lavazza	2,80%	2,90%	2,90%	3%
Others	31,40%	29,70%	29,70%	23,10%

Given the geographic position - a small and limited market, there are 68 subjects in this scope of business in Croatia, of which 47 are micro-enterprises, 17 small, 3 medium-sized and Franck as the only large company. According to the above mentioned, comparison of Franck Plc. with industry and high quality peer analysis is not possible. Within this business, the 10 largest companies hold the total market share of over 89%. Only Franck as the largest processor occupies 57% of the market share.

4. MARKET POSITIONING OF FRANCK PLC.

According to the National Classification of Activities, the main activity of Franck Plc. is C 10.83: Processing of tea and coffee. Apart from the basic company, Franck Plc., there is also an affiliated company Adria Snack Company Ltd., which is a joint venture partnership between Franck and Intersnack. Affiliated company covers segment of snacks. The main activity of ASC is C 10.31: Processing and preserving of potatoes. At the global level, the coffee and tea industry, including Franck Plc. is large and measured in millions of kilos of produced coffee. In 2015, 10 of the world's largest coffee makers produced over 140 million kilos of coffee. At the top of the world coffee producers list is Brazil with over 40 million kilos produced. In addition to Brazil, Vietnam, Indonesia and Ethiopia are at the top of the world's production and processing of coffee too. Coffee industry is an industry that faces several key risks and most important is climate changes - production and therefore coffee processing can be affected by climatic conditions such as excessive dry or rainy periods (example of drought in Brazil 2013/2014). The second risk is the exchange rate risk - changes in the local currency against the US dollar. Big change in coffee prices, which is extremely important for coffee importers and processors such as Franck Plc., are mainly due to global supply and demand, weather conditions and investment in commodity markets. Since Franck Plc. is only a processor and not a coffee maker, comparisons with the largest manufacturers worldwide are not necessary because their business relationship is defined as a buyer-supplier relationship. Franck Plc. with its activity in Croatia is acting as an importer of coffee for further processing. The European Union is the largest importer of coffee in the world. Second largest importer of coffee is the United States. The rise in demand for coffee and coffee consumption is on a constant rise, both in the European Union and in the world. On the Croatian market Franck Plc. convincingly holds the first position. Among the biggest competitors Franck Plc. has the highest growth by some measurable parameters. The tables below show the position of Franck Plc. compared to market competitors based on total revenue and EBIT, according to financial data for 2016.

Table 4: Share of activities by total income (2016)

Rank	Name of the company	Share in top 10	Share in activity
1.	Franck Plc.	64,92%	57,88%
2.	Julius Meinl Bonfanti Ltd.	9,36%	8,34%
3.	Anamarija – Company Ltd.	6,15%	5,49%
4.	Arabesca Ltd.	4,13%	3,69%
5.	Jan-Spider Ltd.	3,61%	3,21%
6.	Agristar Ltd.	3,07%	2,74%
7.	Alba M.S. Ltd.	2,97%	2,64%
8.	Rio – Pak Ltd.	2,21%	1,97%
9.	Milman Ltd.	1,87%	1,67%
10.	Herbarium Ltd.	1,72%	1,53%
11.	Others		10,84%

Table 4: Share in activity according to EBIT (2016)

Rank	Name of the company	Share in top 10	Share in activity
1.	Julius Meinl Bonfanti Ltd.	34,01%	30,29%
2.	Milman Ltd.	17,46%	15,55%
3.	Jan-Spider Ltd.	12,03%	10,71%
4.	Franck Ltd.	11,79%	10,50%
5.	Tinktura Ltd.	7,83%	6,97%
6.	Anamarija - Company Ltd.	7,44%	6,63%
7.	Agristar Ltd.	3,83%	3,41%
8.	Suban Ltd.	2,20%	1,96%
9.	Herbarium Ltd.	1,72%	1,53%
10.	HSK Adriatic Ltd.	1,69%	1,51%
11.	Others		10,94%

Table 3 shows the company's share of total revenue in 2016. It can be read from the table that Franck dominates in shares. Share in total industry by income is almost 58% while the one in top ten companies is 65%. With such numbers, Franck has long been positioned as a market leader in the industry, and all further strategies are aimed at preserving such a position in the future. We see that the next biggest market share is only the ninth part of Franck's share so it can be interpreted that Franck has no fear of losing market leader position. The second table, table 4, shows the share of enterprises in activities according to EBIT - earnings share before interest and taxes in 2016. According to this measure we can see that no company occupies more than 50% and the largest share has Julius Meinl Bonfanti d.o.o and it is 34%. Franck Plc. is on the fourth place with a share of 10.5% in the total industry, and close to 12% in top ten companies. It can be concluded that even though the company has the highest revenue, it also has large production costs. Despite leadership, Franck Plc. continues to extend its assortment introducing new products in order to keep its consumers and attract new ones. A large number of new products were well received by consumers and found their place in store shelves as well as they were able to attract consumer attention. Competition in this industry is trying to stay in the race for market share and is increasingly focusing on certain market niches, whether it is fresh or instant coffee. Innovation and introduction of new products, as well as updating assortments in this way give companies opportunities for market growth and conquering a small part of consumers who are not loyal customers. Franck Plc. remains the company with the most innovations and new products annually launched on the market. Evidence of Franck's agility in the market and the desire to remain in the leading position can be seen through the launch of some of the many new products. Some are worth mentioning: Freshly ground hazelnut and chocolate coffee, 100% Arabica coffee, 3-in-1 instant coffee with added cocoa, Franck Cream instant coffee with Turkish coffee flavor. As a response to the market the largest competitor of Franck, Atlantic Group, offered BarcaffeeBlack & Easy instant coffee also with Turkish coffee flavor. On the entire Croatian market of hot drinks Franck Plc. is an indisputable leader and is still growing. Franck's core business and main strength is coffee. Through coffee and its positioning on the market, other Franck products can also profit. With its strength coffee helped a wide range of other Franck products in positioning on the market as well as increasing the possibility of greater recognition for herbal teas and other hot drinks made on the plant base like Divka, Seka and Bianka. By 2015, Franck among other innovations launches a new line of top teas, Franck Superiore - a wide range of teas with fruit, vegetable and black bases.

Except coffee and other hot drinks, Franck also participates in the market with other food products such as snacks. In this segment also has a leading position on the market. Franck has the longest tradition in the market and has built the reputation of the leading snack maker in Croatia. Snacks offered by Franck are TipTop, Flips and the most famous and most successful snack from the assortment is ČipiČips. In this segment, Franck is also ahead with innovations where its biggest competitor is again Atlantic Group.

Table 5: The share of companies in the Croatian market of snacks

Name of the company	2012	2013	2014	2015
Franck/Adria Snack Company	38,60%	36,30%	36,40%	36,60%
Atlantic Group	5,90%	7,10%	8,20%	9,80%
Podravka	4,60%	4,90%	4,80%	5%
Lorenz Bahlsen Snack	4,10%	4,40%	4,50%	4,60%
Marbo	6,30%	6,40%	6,10%	4,30%
Ital Food Industry	3,40%	3,70%	3,80%	4,20%
Others	37,10%	37,20%	36,20%	35,50%

Croatian consumers remain faithful to proven products and choose companies whose products are known for a long time and which are longer on the market. Domestic producers dominate on the market of snacks and occupy approximately 2/3 of the total snack market. By joining Intersnack and setting up Adria Snack Company, Franck overgrown the Croatian market and expanded to the market of the region. With this merger, Franck became more cost effective and provided faster modernization and investment cycle for the segment of snacks. With the distribution of not only its products but also the Intersnack product, Franck increases its negotiating power.

5. CONCLUSION

Recently, the development of the market as well as the competition has become more prominent and dynamic. Competitive dynamics is strong in all industries, as well as in the coffee processing industry and plant resources for the production of hot drinks. An intense competition emerges from a strategic competition of competitors in the same industry who are increasingly innovative and aggressive. The dynamic and aggressive environment of the company encourages changes in business and innovation in order to maintain in the industry and to preserve or gain competitive advantage. In such environments companies are encountering the question of how their production cycle, product range and processes within a company match the demands of the market and the consumer. Achieving competitive advantage in hypercompetitive conditions is demanding, but retaining the same competitive advantage for a longer time is even more challenging. In the context of increasing dynamics and competition, companies undertake strategic actions with the aim of retaining the benefits and achieving market growth. At the times when the competitive advantages are increasingly temporary, competition and the tendencies of competitors in the industry are becoming more and more important, Franck Plc. retains the leading position in coffee processing and hot beverage industry as well as in the snack industry. With constant innovations and product assortment company succeeds in retaining business success and first place among competitors. Various and continuous actions they take, prudent access to the market and consumer expectations, the revision and removal of unprofitable products from the assortment puts them in a prestigious position on the Croatian market compared to other competitors where active presence on the market, taking action and innovations are key to survival.

Strategic repertoire that Franck Plc. takes is more than a successful set of action and an example to others that long dominance over its competitors and constant position of a leader is not achieved overnight and without a carefully thought-out decision. To win the market and keep it in the leading position, any company is obliged to take action that results in the desired effect and achievement of the set goals. Companies that face a growing number of aggressive and innovative competitors in a dynamic environment, wanting to preserve or gain competitive advantage are required to turn to strategic planning and introduce a more complex and innovative strategic repertoire.

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MANAGERIAL SKILLS FOR IMPROVING PROFESSIONAL PERFORMANCE: A PERSPECTIVE FROM ENGINEERS IN CONSTRUCTION

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ABSTRACT

Today's construction projects that engineers run or participate in their realization have become extremely complex, so their business value and risks that can significantly impact their economic effects can only be estimated by a good combination of technical and managerial knowledge and skills. The construction market became considerably internationalized and if construction companies want to survive in that global competition they must further enhance their competences. This paper presents a study that focuses on knowledge and skills necessary for managerial practice in construction sector. The paper first sets out the identified skills required for engineers in order to achieve and improve their professional performance. The skills were grouped into six groups: technical skills, managerial skills, finance skills, IT skills, legal skills and general skills, and among this six groups there were 38 skills. A questionnaire was administered to MBACon students who express their attitudes on relative importance of every skill. The results show that for engineers to achieve their professional performance, managerial skills are the most important. On the second place are technical skills, but IT skills and legal skills turned out to be unimportant. The findings of this study may also show useful guidelines for developing a more effective future strategy for engineering management education.

Keywords: *construction sector, education, engineers, MBA, managerial skills*

1. INTRODUCTION

More and more in recent times, due to the nature of their technical knowledge and education, engineers are finding themselves leading the crucial thrust towards sustainable engineering business (Childs and Gibson, 2010). For years civil engineers all over the world have been successfully heading building and construction companies and various large-scale projects (dams, nuclear plants, ports, etc). They proved their technical knowledge, skills and expertise while working in different economic and political environments, but had problems in efficiently managing time and costs/finances, as they had no formal knowledge or training in management and/or project management (Katavić and Lovrenčić Butković, 2016). Since construction industry is very dynamic and changing sector in every economy, managers who run construction companies are forced to improve their knowledge and skills.

In addition to that is Fayol's (1949) establishment of correlation between technical and other general (economic, sociological, managerial and other) knowledge for various job positions in the management hierarchy. Hanry Fayol, the founder of modern management, found that the need for the level of general knowledge grows proportionately with the position held on the ladder of management, while the need for professional-technical knowledge falls. In other words, every manager knows well that the higher his/her position in the managerial structure is, the less he/she has "to do" with solving technical/professional problems and the more time and energy he/she spends in solving "all the other" problems in the company. Some researches were conducted (for example Katavić and Đukan, 1998; Katavić and Cerić, 2002) with the purpose to highlight the most important knowledge and skills that the successful managers in the construction industry should possess.

The results of these researches showed that civil engineers and other technical professions are more and more aware that they need additional education in the management fields. To fulfill the needs mentioned above, University of Zagreb developed a *MBA in Construction* program which focuses on construction with the purpose of providing present and future construction managers with knowledge in various non-engineering fields necessary to understand and master complex management processes.

The International *MBA in Construction* program started in 2003, as a TEMPUS project of Zagreb University (Faculty of Civil Engineering and Faculty of Economics), in cooperation with partner institutions from the EU. Today it is a specialist post-graduate study (MBACon), a key element of lifelong education, and was modified to meet the new requirements and trends of construction sector.

This paper presents the outcome of a survey conducted among MBACon's students that examined what knowledge and skills are necessary for managerial practice in construction sector. Section 2 gives a review of the essential managerial knowledge and skills. The research approach is presented in the third section and the results of the survey are presented in the fourth section.

2 ESSENTIAL MANAGERIAL KNOWLEDGE AND SKILLS

So far, many authors have investigated what skills an effective manager should posses. R. L. Katz (1955) was the first who paid attention to the problem of identifying skills necessary for successful performance in managerial roles. His work first was published in 1955 in the Harvard Business Review, where he pointed out the skills of an effective manager. Those are:

- technical,
- human and
- conceptual skills (Katz, 1955: p.42).

Katz's paper was reprinted two times as a HBR Classic, in 1974 and in 1986. After that, Peterson and Fleet (2004) have reviewed Katz's paper form 1986 and they modified some elements and identified additional seven skills alongside Katz's three skills. These are – Technical, Analytic, Decision making, Human, Communication, Interpersonal, Conceptual, Diagnostic, Flexible and Administrative (Figure 1).

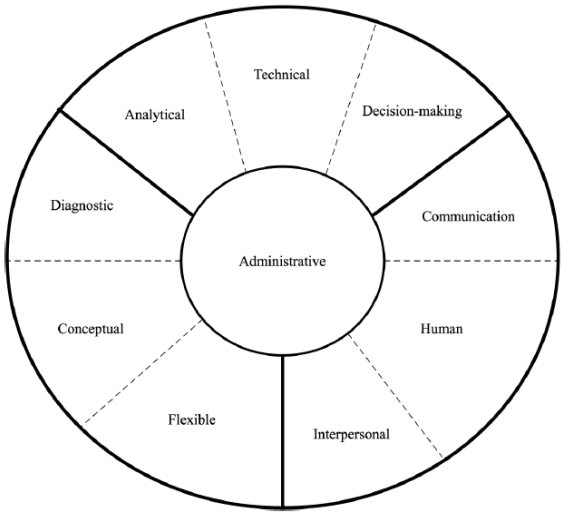

Figure 1. Managerial skill model (Peterson and Van Fleet, 2004, p.1304)

This ten skills mentioned above were also used by Childs and Gibson (2010) who investigated what management skills a graduate engineer should possess. They tried to describe and review the professional managerial skills that will be needed by graduate engineers to allow them to perform within the current multiskilled work environment and better meet the needs of employers.

In last two decades managerial work has changed significantly, largely because of economic, organizational and technological changes within every industry. Because of that, the skills and competency that managers need to be effective also changed. Worrall and Cooper (2001) investigated what types of skills managers will require in the next years. Their study showed that at the top of the list is using IT, on the second place is managing information/knowledge, followed by financial management and strategic thinking. Those skills are known as a "hard" skills. The "softer" skills such as interpersonal skills, working as a part of a team, coaching/counseling and negotiating skills are placed much further down at the priority list. But much more literature is pointing to the increasing importance of the soft skills in the changing context in which managerial work is enacted (Cappelli, 1999).

Nguyen (1998) conducted a research administered to Academics, industry personnel and students about essential generic and specialist skills and attributes are for a modern engineer. He stated that engineers in the past were mainly concerned with the technical aspects of engineering, but times, and the roles of engineers, have changed. This study includes seven generic skills and attributes: technical knowledge and skills, intellectual skills, attitudes (behaviour, thoughts and actions), standards of engineering practice, business practices, international/national history and culture and proficiency in languages.

Since the construction industry is project-oriented industry, lots of studies and researches were dealing with identifying the knowledge and skills required for today's successful project managers. For example, Edum-Fotwe and McCaffer (2000) in their study were focused on the development of construction projects managers and how they maintain their professional skills in a changing construction business environment. They found out that several general skills often become relevant to construction projects managers:

- Leading,
- Communicating,
- Negotiating, and
- Problem solving (Edum-Fotwe and McCaffer, 2000: 113-114).

However, there is a lack of researches about knowledge and skills needed for the engineers on the management positions in construction sector. The main idea of this paper is to show which management skills are generally important for engineers in order to improve their professional performance. The results could be very helpful for developing a more effective future strategy for engineering management education, especially for the International *MBA in Construction* program.

3. THE RESEARCH APPROACH

The construction industry presents an important part of every economy and it is expressed in all significant sector indicators. This is the reason why today's construction companies need to be lead by successful and effective managers. The survey elicited the key issues - MBACon students' perception of the relative importance of the identified management skills in contributing to their professional performance.

The questionnaire was administered by four generation of students who have been attending postgraduate MBA in Construction study. A total of 46 questionnaires were sent out by an e-mail to the students and 22 usable questionnaires were obtained, giving a response rate of 47,8 %. This level of response rate exceeded the norm expected for survey research in construction (Edum-Fotwe and McCaffer, 2000).

The various managerial skills used in the questionnaire were adopted mostly from Edum-Fotwe and McCaffer work (2000) who defined knowledge and skill factors contributed to construction project manager's professional development. Moreover, the authors added several items, such as risk management and controlling. Following a suggestion by Crompton et al. (2001), the questionnaire was aimed to be as short as possible to take less time to complete, in order to get more cooperation of the respondents.

The questionnaire consisted of two sections. The first section presents general information about respondents, such as gender, age, academic background etc., and the second section presents respondent perspective on importance of various management skills needed for engineers to improve their professional performance. The importance of every skill listed in the questionnaire was measured on a five-point Likert scale with the following values: 5 = absolutely important, 4 = important, 3 = neutral, 2 = not important and 1 = absolutely not important.

4. RESULTS AND DISCUSSION

The results of the survey were analyzed by descriptive statistics, and have been organized in two main sections. The first section presents general information about respondents, such as gender, age, academic background, years of work experience, function in the company etc. The second section addresses the objective of the study. It presents respondent perspective on relative importance of various management skills needed for engineers to improve their professional performance.

4.1 Demographic characteristics of respondents

The descriptive analysis of demographic characteristics of the respondents is presented in Table 1.

Table following on the next page

Table 1. Demographic characteristics of the respondents

Variables	Frequency	Percentage
Age		
<30	2	9,1%
30-40	7	31,8%
41-50	10	45,5%
51+	3	13,6%
Gender		
male	19	86,4%
female	3	13,6%
Academic background		
Master of Civil Engineering	18	81,8%
Master of Architecture	2	9,1%
Master of Electrical Engineering	1	4,5%
MBA	1	4,5%
Type of the company		
Consulting company	12	54,5%
Designer company	5	22,7%
Performing company	1	4,5%
Financial institution	1	4,5%
Investor and management company	1	4,5%
Client	1	4,5%
Public company	1	4,5%
Years of work experience		
<5	2	9,1%
5-10	1	4,5%
11-20	14	63,6%
20+	5	22,7%
Function in the company		
Project manager	5	22,7%
Consultant	5	22,7%
Director	11	50,0%
Manager of surveillance function	1	4,5%
Additional education or training program in management		
Yes	13	59,1%
No	9	40,9%
Status in MBACon – obtained degree		
Yes	5	22,7%
No	17	77,3%

Table 1. shows the following gender distribution: males representing 86,4 % and females only 13,6 % of the sample. Table 1 shows that the respondents are predominantly in the age group of 41-50 years (45,5 %). Only 9,1 % of respondents are under 30 years of age, 31,8 % are in the age group 30-40 years of age and 13,6 % are older than 50 years. The academic background of the respondents shows that the most of them are master of civil engineering, 81,8 %, 9,1 % are master of architecture, only one (4,5 %) is master of electrical engineering and one (4,5 %) already has another MBA degree.

This indicates that they all have technical background. More than a half of respondents (54,5 %) are working in the consulting companies, in designer companies work 23,8 % of the respondents and one respondent (4,5 %) works in performing company, one (4,5 %) in financial institution…

Even all respondents have technical background, exactly half of them are CEOs. That perhaps can be indicative for importance of engineers' education in management. Respondents generally have 11-20 years of working experience (63,6 %), more than 20 years of experience have 22,7 % od respondents, less than 5 years of experience have 9,1 % of respondents and 5-10 years of working experience has only one (4,5 %) respondent.

Additional education or training program in management attended 13 (59,1 %) respondents, but only 5 of them (22,7 %) have finished MBACon study.

4.2 Respondents attitudes on management skills needed for engineers

This section presents respondents perspectives on the importance of various skills for managers who work in construction sector and run construction companies, and its relevance in contributing to their professional performance. The skills are grouped into 6 generic groups: technical skills, managerial skills, financial skills, IT skills, legal skills and general skills.

The methodology for analyzing the results from this part of research is adopted from Edum-Fotwe and McCaffer (2000). The skills listed in the questionnaire were evaluated for a *s-factor*. The rationale of the *s-factor* is to identify the critical skill areas for improving engineers' professional performance. The perceived level of importance for each skill was established by applying equation 1.

$$s\text{-}factor = 100 * \sum x_i f_i / (x_{max} * \sum f_i) \qquad (1)$$

where: *i* takes a value between 1 and 5 based on the adopted nominal scale; x_i represents discrete categories of scaled respondent attitudes; x_{max} the maximum value of x_i; f_i represents the frequency for each category of x_i; $\sum f_i$ represents the total sample size for each skill. The s-factor values ranged between 100 and 0, with higher values indicating a greater degree of importance.

Table 2. presents the resulting *s-factors* associated with group of skills.

Table 2. Group of skills important for the engineers' professional performance

Generic group of skills	*s-factor*
Technical skills	80,00
Managerial skills	90,91
Financial skills	76,36
IT skills	63,64
Legal skills	77,27
General skills	80,91

It can be seen that the most important are managerial skills with *s-factor* over 90 and then general and technical skills. Other skills have *s-factor* under 80 so they are not so important according to the respondents. This study also elicited relative importance for each skill.

The analysis extracted two categories of skills, the primary and the secondary ones. Table 3 and Table 4 present the resulting *s-factors* associated with each skill. These have been organized respectively into primary and secondary groupings, to reflect the perceived impact of the various skills. All skills that yielded *s-factors* above 80.0 were extracted to form the primary group. The skills that returned factors between 50.0 and 80.0 formed the secondary group (Edum-Fotwe and McCaffer, 2000). Skills with factors below 50 were eliminated, as these did not provide strong enough evidence that they would improve the professional performance of engineers.

Table 3. Primary skills for improving engineers' professional performance

Generic group	Skill	*s-factor*
Technical skills	Basic technical knowledge in own field	82,73
	Planning and scheduling	87,27
Managerial skills	Decision making	94,55
	Leadership	92,73
	Negotiation	89,09
	Time management	88,18
	Motivation and promotion	84,55
	Human behaviour	83,64
	Delegation	83,64
	Strategic Planning	82,73
	Risk management	82,73
Financial skills	Establishing budgets	81,82
General skills	Understanding of organization	83,64
	Controlling	80,00

Table 4. Secondary skills for improving engineers' professional performance

Generic group	Skill	*s-factor*
Technical skills	Estimating and tendering	78,18
	Forecast techniques	77,27
	Reading and understanding drawings	70,00
	Quality control	68,18
	Operation research	68,18
	Material procurement	66,36
Financial skills	Investment appraisal	79,09
	Project finance arrangement	76,36
	Establishing cash flow	75,45
	Reporting system	73,64
	VAT and Taxation	61,82
	Stock control and evaluation	58,18
IT skills	Project management software	75,45
	Special applications	64,76
	Operating system	62,73
	Information systems and IT tools	58,18
Legal skills	Preparation of claims and litigation	75,45
	General legal background	72,73
	Drafting contracts	72,73
	Trade unions and public authorities	64,55
	Industrial relations	62,73
General skills	Public relations	70,91
	Marketing and sales	66,36

The results presented in the Table 3., show the important role of managerial skills for achieving and improving engineers' professional performance, especially in the construction industry. The most important skills are decision making and leadership with *s-factor* over 90. Of the technical skills essential for the managerial role in construction sector, the most important are basic technical knowledge in own field and planning and scheduling. In a primary group of skills are also establishing budget as a financial skill and understanding of organization and controlling as other general skills. It is interesting that none of the IT skills is categorized as a primary skill.

Table 4. presents the skills that were categorized as secondary factors. This mostly reflected technical skills, IT skills, legal skills and some of financial skills.

5. CONCLUSION

The importance of the managerial education for the engineers, especially for the ones who work in construction sector, is unquestionable. Today's construction projects that engineers run or participate in their realization have become extremely complex, so their business value and risks that can significantly impact their economic effects can only be estimated by a good combination of technical and managerial knowledge and skills. The construction market became considerably internationalized and if construction companies want to survive in that global competition they must further enhance their competences. Because of this reasons, an MBA study that is tailored to the construction sector was developed few years ago (MBACon).

The aim of this work was to find out which skills are important for improving engineers' professional performance according to MBACon students' attitudes. The paper established the importance of managerial knowledge and skills in additional engineers education. Knowledge gained in additional education can give engineers added value to their business experience, enabling them to adapt more quickly to a fast changing business environment, more effectively analyze business issues and improve their professional performance. The findings of this study may also show useful guidelines for developing a more effective future strategy for engineering management education, especially for the International *MBA in Construction* program.

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CONCIOUS BUYING AS SUSTAINABLE FASHION DRIVER – SURVEY ON CROATIAN STUDENTS' ATTITUDE

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ABSTRACT

Fashion industry is generally perceived as one of the biggest environmental polluter. So called fast fashion creates items to be replaced quickly and it directly leaves a huge impact on environment. Unlike fast fashion, slow fashion describes a socially conscious movement that is decidedly at odds with the ever faster fashion cycle from its production to disposal. In order to explore the common assumption that today's consumer are more and more concerned about environmental sustainability, we conducted the survey at two different Faculties at the University of Zagreb, Croatia. We questioned students about their shopping habits in second-hand shops, disposal of their fashion products and about their attitude towards fashion product recycling. Sustainable thinking would encourage consumers to commit to buying more used than new items and leave less clothing on disposal. As student population are one of the fast fashion main targets and one of the biggest consumers, results presented in this paper will bring important data for Croatian (as an example of Central and East European country) sustainable clothing producers. Conclusion will provide data on students' attitude towards conscious buying and recycling habits and also basis for further research will be set.

Keywords: *conscious buying, environmental sustainability, fashion industry, fast fashion*

1. INTRODUCTION

Everyone designs who devises courses of action aimed at changing existing situations into preferred ones (Simon, 1996:111). Design is in the core of fashion industry, yet design could lead to its end. Today fashion is designed so that old is replaced by trendy quickly driven not by need but by desire. Fashion is also a rather complicated industry due to its value building process, involving long and varied supply chains of crop farming, raw material production, textile manufacture, clothing construction, size development, marketing and promotion, distribution, retail, shipping, use and ultimately discarding of the garment, and more. The current business model in fashion retail creates high demand for quick design that puts cheap clothes fast in retail stored and therefore it creates huge problems mainly from ecological but also social perspective. It is "two-headed beast" polluting both throughout production of clothes and its disposal so fashion industry is generally perceived as one of world's biggest polluters and it has huge impact on social dynamics in certain geographical areas. On the other hand fashion end products can be reused or recycled. Better sorting of textile waste, its donation and collection, technological advances in fibres, smart cloth design, improved packaging, smart transportation, enabling textile reuse, responsible consumer choices can all contribute to making less pollution.

In this paper firstly, fast and slow fashion concept will be explained. Then, recycling as post purchase habit will be discussed as a possibility of waste reduction in the environment and at the end of theoretical part, fast fashion consumers will be defined contrary to conscious fashion consumers. The goal of this research is to get better understanding of the shopping habits, post purchase habits and attitudes towards recycling, of the Croatian student population

2. THEORETICAL FRAMEWORK

2.1 Fast vs. slow fashion

In order to reduce environmental footprint caused by fast fashion approach to industry, it seems growing number of fashion designers started to apply sustainable concepts in every aspect of their value added model. They aim to extend fashion products life cycles with designing slow fashion products and directly influence consumers not to consume fast fashion products that after very short time end in the landscape. Companies in fashion industry until the late 1980s focused their ”capability of forecasting consumer demand and fashion trends long before the actual time of consumption in order to compete in the market” while in recent years ”fashion retailers compete with others by ensuring speed to market with their ability to provide rapidly the fashion trends revealed by fashion shows and runways” (Bhardwaj and Fairhurst, 2010: 165). According Turker and Altuntas (2014: 838), ‘fast-fashion’ can be defined as an industry that aims ”to attract customers into stores as frequently as possible in order to increase the frequency that they purchase fashionable styles”. Result of shortening the time to get clothing into stores is an increasing number of ‘seasons’ (Bruce and Daly, 2006). Cachon and Swinney (2011: 778) highlighted two components of fast fashion: short production and distribution lead times and highly fashionable (trendy) product design. Fast fashion companies on the market sustained consumption globally in the fashion apparel sector in spite of the economic crisis (Arrigo, 2013).

The fast fashion model is characterized by the lack of personality of one particular stylist or a specific place and it belongs to today’s global culture of fashion and brands and today’s two fast fashion leaders (H&M and Zara) come from Sweden and Spain, two countries that had almost no influence on the development of the older high fashion (Gabrielli, Baghi and Codeluppi, 2013: 207). Fast fashion is considered unsustainable because it leads to over-consumption of fashion products, disposability, and poor product quality and also because its business model withdraws many social and environmental issues such as exploitation of natural resources and labour conditions (Park and Kim, 2016).

On the other hand, slow-fashion is a rather new sustainable movement in the fashion industry (Jung and Jin, 2014). The term slow fashion was coined in 2008 and it describes a socially conscious movement that is decidedly at odds with the ever faster fashion cycle from its production to disposal (Fletcher, 2014).

Slow fashion is not referenced on time, as the title suggests, but on the philosophy of attention that is aware of the needs of its stakeholders (stakeholders are designers, buyers, sellers and consumers) and the influence that fashion production has on workers, consumers and the ecosystem (Pookulangara and Shepard, 2013.). Slow fashion products are those products that are not produced under the ideals of business models of fast fashion and generally do not respond to fast-changing fashion trends, and they become popular when designers begin to abandon high frequency fashion industries and adopt to a flexible, season-free design that can handle the entire year, and hence the model of slow fashion presents a shift from quantity to quality (Watson and Yan, 2013).

2.2 Recycling as a solution?

Just in the UK, every year more than one million tones of textiles end up in landfill sites. This implies that the final component of consumer behaviour – decision whether clothing is re-used, recycled or simply discarded or destroyed is very important (Birtwistle and Moore, 2007). Authors highlight that the advantage of re-using and recycling has economic and environmental benefits, while textile recovery reduce environmental pollution. According to Morgan and Birtwistle (2009: 191), there is a strong positive relationship between fast fashion and increasing textile waste while consumers are discarding higher volumes of textile waste comparing the last decade. Authors explain that this is "clearly a result of the cheap clothing readily available from fast-fashion retailers", because of "the synthetic nature of the materials used in the cheap clothing, they are not easily recyclable". When it is recycled, old clothing and other textiles are recovered for reuse

Particularly for clothing, recycling behaviour, according to Bianchi and Birtwistle (2010: 357) is positively related to the fashion disposal methods such as "donating to charities and consumers who usually recycle plastic, glass or paper are more likely to recycle their fashion garments" and also, consumers 'feel better' after donating their used clothing. Bianchi and Birtwistle (2012) highlight that the environmental attitude of consumers has a powerful influence on disposal methods such as recycling and consumer knowledge of disposal options and waste recycling have an impact on recycling methods. Further, authors explain that it is still not transparent which are the main drivers that lead consumers to choose different methods of disposal behaviour. Thus, the promotion of recycling has become increasingly important (Bianchi and Birtwistle, 2010).

Textile recycling is the method of *reusing* or reprocessing used *clothing*, fibrous *material* and *clothing* scraps from the manufacturing *process* (Choi, 2016: 183). As society becomes more aware with the benefits of recycling and hazards associated with sending used textiles to the landfill, and both, demand and supply of recycled textiles continue to develop, it can be anticipated that the textile recycling industry will continue to grow because the basis for its growth is the growth of textile industry itself.

2.3 Conscious fashion consumers as a solution?

In fast fashion companies buying occurs frequently, on a weekly basis and constant reductions and sales want to get rid of unsold stock quickly, and replace this with more fashionable items (Bruce and Daly, 2016). Consumers are constantly informed about the latest fashion trends and they feel the need to adapt to the reality around them in an affordable, effective manner while at the same time fast fashion companies stimulate mature consumers, who no longer buy something because they need and encourage consumers to make numerous choices, even mistakes, as their choices do not cost much (Gabrielli, Baghi and Codeluppi, 2013). There are more and more small collections and fashion retailers constantly encourage consumers to visit their stores more frequently with the idea the consumers believe of 'Here Today, Gone Tomorrow' and consumers are becoming more demanding pushing retailers to provide the right product at the right time in the market (Bhardwaj and Fairhurst, 2010). It can be concluded that fast fashion supports excessive consumerism that at the end leaves footprint in environment so social conscious consumers on the contrast of fast fashion consumers should be appreciated. Social conscious consumers can be defined as "a consumer who takes into account the public consequences of his or her private consumption or who attempts to use his or her purchasing power to bring about social change" (Frederick and Webster, 1975: 188). On ecologically conscious consumer behaviour lies progress toward solving environmental problems (Roberts and Bacon, 1997).

Although ethical consumption activity includes "positive choice behaviours such as the purchase of fairly traded or environmentally friendly products, and can involve avoidance and boycott of certain goods or companies" it must be clear that what is suitable by one individual may not be so for another and consumption is often "embedded in 'relationships of obligation'; most of us consume, behave and take decisions as members of households, families, social networks and communities" (Szmigin, Carrigan and McEachern, 2009: 224; 225). According Chan and Wong (2012) there is a gap between attitude and a real action explained that despite a positive attitude customers have toward environmental protection of fashion consumers, they rarely apply such positive attitude into eco-fashion consumption while fashion consumers are interested in purchasing eco-fashion but they are not willing to sacrifice personally, such as paying a higher price and they will not pay over 10% more for sustainable clothes.

3. RESEARCH ON CROATIAN STUDENTS' ATTITUDE ON CONCIOUS BUYING

3.1 Sample and data collection

According Bhardwaj and Fairhurst (2010) there is a gap in the literature focusing on the overall concept of 'fast fashion' that has emerged in the fashion industry from a consumer perspective. For the purpose of this research focusing on the sustainable fashion behaviour, an anonymous survey was conducted with the target group of students at the University of Zagreb Faculty of Textile Technology (FTT) and Faculty of Economics and Business (FEB) in the academic year 2017/18 to test if there are any differentness in perception of conscious buying and post shopping habits in student population that studies Fashion and textile design at the Faculty of Textile technology and students who do not get any official knowledge about fashion and study Business economy at Faculty of Economics and Business. The total number of valid questionnaires collected at Faculty of Textile Technology was 90 and at Faculty of Economics and Business, 65. The average age of participants in the survey of the Faculty of Textile Technology was 22.26 years and at The Faculty of Economics and Business was 21.27 years. The research was carried out in 2017 in period of two months (January and February) at the Faculty of Textile Technology and in November at the Faculty of Economics and Business, both University of Zagreb, Croatia.

3.2 Results on sustainable fashion behaviour

The first question was "How often do you buy clothes?" and participants could choose one category. The results are presented in Table 1.

Table 1: Frequency of purchasing clothes in subjects Faculty of Textile Technology (FTT) and The Faculty of Economics and Business (FEB) (authors)

	FTT		**FEB**	
Buying clothes by categories	**Number of respondents**	**%**	**Number of respondents**	**%**
Once a week	4	4.44	2	3.08
Several times a week	0	0	1	1.54
Once a month	15	16.66	17	26.15
Several times a month	8	8.88	10	15.38
Only when I need something	22	24.45	12	18.46
When I find something I like	41	45.56	23	35.38
Total	**90**	**100**	**65**	**100**

As it can be concluded from Table 1 both groups agreed that they mostly buy 'When they come across something they like' (FTT 45.56% and FEB 38.55%), followed by 'Once a month' (FTT 16.66% and FEB 21.69%).

According to the data, there are no huge noticeable differences in the purchasing habits of the two observed groups except 13.25% students of FEB buy 'Several times a month' and 24.45% of FTT students buy 'Only when I need something'.

Second question was "Do you buy in second-hand stores?". Results are presented in Table 2.

Table 2: Buying clothes in second-hand stores (%) (authors)

	FTT		**FEB**	
	Number of respondents	**%**	**Number of respondents**	**%**
Yes	51	56.66	4	6.15
No	39	43.33	61	93.85
Total	**90**	**100**	**65**	**100**

From the Table 2 we conclude that there is a significant difference in the two observed groups regarding their shopping habits in the second-hand stores. 56.66% of FTT students buy in the second-hand stores comparing to only 6.15% of FEB students.

In the next opened question students who buy in second-hand stores have explained how often and what do they buy. The most respondents of FTT students (30%), explained that they buy in second-hand stores when they like or need something and 18% buy several times a year clothes that are unusual or vintage. 15% of respondents of FTT have expressed their opinion in other comments section. Some of interesting opinions about buying in second-hand stores were: "I buy clothes that can be tailored", that is reasonable because they study Fashion design. Further answers were: "In second-hand stores I buy everything except lingerie and shoes" and "I do not like high street brands because they all look the same, so I buy vintage."

In the same opened question, students were asked to explain what were the reasons for them not to buy in second-hand stores. The answers given are summarized in Table 3.

Table 3. Students' explanation for non-buying in the second-hand stores (authors)

	FTT		**FEB**	
Categories by reason of which they are not bought in second-hand stores	**Number of respondents**	**%**	**Number of respondents**	**%**
They did not explain the reasons (no comments).	13	33.33	32	52.45
There is no habit of buying in second-hand stores.	0	0	12	19.68
I do not feel comfortable in clothes that someone has already worn or has unknown origin.	9	23.07	10	16.4
I did not found in stores what I prefer.	9	23.07	0	0
I have not been in the second-hand stores yet but I intend to.	2	5.12	0	0
I can't find the right garment size.	0	0	2	3.27
Other comments	6	15.38	5	8.2
Total	**39**	**100**	**61**	**100**

According to the Table 3, 23.97% of FTT students and 16.4% of FEB students do not buy in second-hand stores because they do not feel comfortable in clothes that someone has already worn or has unknown origin and the same percentage of FTT students did not found in stores what they preferred, while 19.68% of FEB students do not have habit of buying in second-hand stores. Few of the FEB students mentioned that they ”feel ashamed when entering a second hand store”, that clothing “is not of a good quality” and that they are “loyal to the brands they usually buy”.

Next question tested students’ post shopping habits.

Table 4: An examination of students’ habits regarding the clothes they no longer wear and it is still in good condition (authors)

	FTT		**FEB**	
Category of respondents' habits	**Number of respondents**	**%**	**Number of respondents**	**%**
I keep my clothes in the closet for possible future use.	28	31.11	27	26.73
I give clothes to friends / family / acquaintances.	23	25,55	36	35.65
I donate clothes to the Red Cross or Caritas.	14	15.55	26	25.74
I throw the clothes in the trash.	5	5.55	3	2.97
I repair / tailor.	6	6.66	4	3.96
Other answers	14	15.55	5	4.95
Total	**90**	**100**	**65**	**100**

Table 4 shows that 31.33% of FTT students keep their clothes in the closet for possible future use, while only 25.5% of respondents donate clothes to friends or family while 35.65% of FEB students donate clothes to friends or family and 15.55% of FTT students and 25.74% of FEB students donate clothes to the Red Cross or Caritas. Surprising data is that only 5.55% of FTT students and 2.97% of FEB students throw the clothes in the trash. It means that student population is aware of the pollution caused by the fashion industry and try to find another possible way for clothes they do not wear any more due to changing fashion trends.

Question that followed was about attitude forward fashion products recycling. Again, positive attitude towards recycling was surprising while in Croatia recycling is just entering our homes together with separation of garbage. 96.25% of FTT students and 93.85% of FEB students support recycling of clothing and textiles.

In the last question students were asked to explain how do they support clothing / textiles recycling. Results are presented in Table 5. 77 students of FTT and 61 students of FEB answered this question.

Table following on the next page

Table 5. Students' methods of supporting recycling

	FTT		FEB	
Answers	**Number of respondents**	**%**	**Number of respondents**	**%**
I modify clothing (redesign) and consider that old clothes can be used for other purposes.	28	36.36	0	0
I put clothes in the recycling bucket, H&M stores or share with friends.	16	20.77	37	60.65
I support recycling without any concrete action.	19	24.66	8	13.11
I support recycling by purchasing and promoting recycled and 'second-hand' clothing or support DIY ("Do It Yourself") projects.	3	3.89	0	0
No comment	11	14.28	16	26.24
Total	**77**	**100**	**61**	**100**

According Table 5 it can be concluded that FTT students prefer to modify clothing (redesign)/ consider that old clothes can be used for other purposes (36.36%) and both observed groups put clothes in the recycling bucket/ H&M stores / shared with friends (60.65% of FEB students and 20.77% of FTT students). Surprising is that only 4% of FTT students support by purchasing and promoting recycled and 'second-hand' clothing / support DIY ("Do It Yourself") projects.

4. CONCLUSION

Since sustainability as a concept impacted the fashion industry, it gained attention by researchers. The purpose of this analysis is to understand post purchase habits of fashion products, to invite consideration of recycling, and to lay the possible groundwork for apportioning responsibility for climate change to the entities that provided fashion products to the CEE market.

From the conducted research, it can be concluded that there is a significant difference in the habit of buying clothes in second hand shops where 51.25% of FTT students buy second-hand clothes in second-hand stores, incendiary to only 6.15% of FEB students. The facts that FEB students do not have a habit of buying in second-hand stores and that both observed groups do not feel comfortable in clothes that someone has already worn or has unknown origin are important for this research. It can be deducted that students' population should be educated to become conscious about advantages of buying in second-hand shops. Comparing the survey conducted in two different faculties and two different fields, it is evident that the FEB students do not see any new usable value in their old clothes, as opposed to the FTT students, of which 36.36% the redesigns their old clothes. Although research from Birtwistle and Moore (2007) explained that consumers that disposed products with little reference to further use tend to be younger, 61% of targeted students' population at the University of Zagreb take a concrete steps of fashion products disposal. As Chan and Wong (2012) concluded, there is a gap between attitude towards environmental protection and a real action, so although consumers have positive attitude toward environmental protection; they rarely apply such positive attitude into concrete consumption. This research has also shown that there are a significant percentage of students that support recycling without any concrete action. Further research should detect more deeply post shopping habits of student population as one of the major consumers of fast fashion.

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A META-ANALYSIS OF CORPORATE RESEARCH AND DEVELOPMENT EXPENDITURES

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ABSTRACT

We explore the determinants of corporate research and development (R&D) expenditures. We focus on one specific aspect that has not been taken into consideration: the publication selection bias. Expenditure on research and development is a key indicator of innovative efforts. Based on empirical literature, inconclusive estimates have been found. This meta-analysis reviews the heterogeneity of empirical results from researches in different economies through a larger more comprehensive data set. The main financial indicators, such as cash flow, liquidity ratio, long-term liabilities, sales volume are of most interest. We investigate how the inconsistencies in the published findings are affected by publication bias, characteristics of the data, estimation techniques, and model specification. We take into account 124 estimates from published empirical studies. We use meta-analysis to combine, summarize, and investigate the reported estimates. In order to detect bias in meta-analysis funnel plots and Galbraith plots, followed by statistical testing using meta-regression, were analyzed. Our results indicate that there is an evidence of publication bias. In particular, the effect of the publication selection occurred for variables: R&D expenditures in the t-1 period, the R&D spending squared in t-1, cash flow in the period t, long-term debt in the period t, sales volume in the t-1 period. The hypothesis about the existence of the publication selection effect for the cash flow variable in the t-1 period and the sales volume in the period t was rejected. Our results emphasize that estimators depend systematically on model specification and estimation method. In addition, we point Generalized Moment Method as the best method of estimation. It allows to estimate the dynamic regression for R&D investments taking into account changes in the available funds.

Keywords: *Financial indicators, Meta-analysis, Publication bias, Research and development expenditures*

1. INTRODUCTION

Studying corporate research and development expenditures is relevant for several reasons. Economic growth and business cycle literature gives a central role to inventive activity (Schumpeter, 1939) and so study of R&D investments might be helpful in understanding the determinants of economic growth and business cycles. Furthermore corporate R&D expenditures have positive public externalities (Romer, 1990). Moreover R&D investments allow to achieve technological competitive (Hall, 1990). R&D expenditures are positively correlated with the process of creating and increasing the human capital resources, development of products, processes and services that drive economic growth. The European Commission recognizes the key role of R&D spending that can be turned into new products and services that create growth and quality jobs. Europe 2020 strategy[1] assumes 3% of the EU's GDP to be invested in R&D.

[1] http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf

As the European Commission notes Europe was not progressing fast enough relative to the rest of the world largely due to a productivity gap. Much of this is due to lower levels of investment in R&D and innovation. Our paper aims to explore the determinants of corporate research and development (R&D) expenditures. We use meta-analysis to combine, summarize, and investigate the reported estimates. Meta-analysis is a statistical approach to analyze an existing literature of reported empirical findings for a similar hypothesis, research question, empirical effect (Stanley and Doucouliagos, 2012). Based on empirical literature, inconclusive estimates for R&D have been found. Meta-analysis reviews the heterogeneity of empirical results. What is more, meta-analysis allows for finding publication bias. Card and Krueger (1995) attribute the existence of the publication selection effect to a natural tendency for reviewers and editors to look more favorably on studies with statistically significant results.

We investigate how the inconsistencies in the published R&D findings are affected by publication bias, characteristics of the data, estimation techniques, and model specification. The main financial indicators, such as cash flow, liquidity ratio, long-term liabilities, sales volume are of most interest. We take into account 124 estimates from published empirical studies. We use meta-analysis to combine, summarize, and investigate the reported estimates. In order to detect bias in meta-analysis funnel plots and Galbraith plots, followed by statistical testing using meta-regression, were analyzed.

Based on our findings we conclude that reported estimates are affected by publication bias. In particular, the effect of the publication selection occurred for variables: Our results indicate that there is an evidence of publication bias. In particular, the effect of the publication selection occurred for variables: R&D expenditures in the t-1 period, the R&D spending squared in t-1, cash flow in the period t, long-term debt in the period t, sales volume in the t-1 period. The hypothesis about the existence of the publication selection effect for the cash flow variable in the t-1 period and the sales volume in the period t was rejected.

The remainder of the paper is structured as follows. Section 2 contains the literature review. Section 3 discusses the data and the empirical approach. Section 4 presents results. Section 5 concludes and gives hints for future research.

2. REVIEW OF THE LITERATURE

Expenditures on research and development allows to create innovative products, processes and services. Technological progress through innovations plays the key role in initiating, accelerating and sustaining economic growth. The rate of technological change has long been considered a key indicator explaining the economic growth, competitiveness of companies and industries. Spending on research and development allows generating innovations, but it also increases the chances of implementation of innovations developed by others. The aim of this section is to describe approaches and results of analysis in the research and development field. Hall (1992) is the author of one of the first empirical work on investment in research and development at the company level. The author verify whether the declines in investment and R&D are following a leverage increase as higher interest expense may lead to lower possibility for investment expenditure. Hall concludes that firms with heavy debt loans are not R&D-intensive. Contemporaneous changes in debt levels are inversely related to R&D investment. Hall finds also that elasticity of R&D investment with respect to cash flow is positive.

Himmelberg and Petersen (1994) test whether internal finance is an important determinant of R&D expenditures in case of small, high-tech firms. Controlling for unobservable firm effects the authors find substantial effect of internal finance on R&D investment. Due to high adjustment costs an elasticity for R&D is smaller than the elasticity for physical investment.

Bhagat and Welch (1995) give a cross-sectional exploration of the predictors of R&D for U.S., Canadian, British, European (Germany, France, Netherlands), and Japanese firms. They find that while debt ratios are negatively correlated with R&D expenditures in the U.S., they are positive predictors of R&D expenditures in Japan, what could mean that U.S. firms either try to secure their R&D expenditures before financial distress by avoiding large debt, or that U.S. lenders are less willing to finance R&D projects. Based on results authors reject the notion that R&D occurs mostly when firms have more operating cash flow, and thus can avoid the costs of external capital markets.

Hall, Mairesse, Branstetter and Crepon (1999) search for causal relationship among cash flow and R&D expenditures in the scientific (high technology) sectors in the United States, France, and Japan. They find the R&D to be cash flow sensitive in case of U.S. firms and lack of the same in France and Japan. Mulkay, Hall and Mairesse (2000) analyze R&D behavior of manufacturing firms in large developed countries, France and United States, that have varying financial and capital market institutions. They estimate a dynamic model for R&D investment. Authors take into account both output (sales or turnover) and cash flow as explanatory variables. They find that cash flow or profits appear to have a much larger impact on R&D the U.S. Bond, Harhoff , Van Reenen (1999) verify the impact of cash flow on R&D in Germany and Great Britain. For German and British firms, cash flow is not significant in simple econometric models for R&D. In Britain financial constraints affect the decision to engage in R&D rather than the level of R&D spending. According to the authors it could mean that British firms face a higher difference between the costs of external and internal finance than German firms, and thus they are more cautious about R&D projects.

Bougheas, Görg, Strobl (2003) verify whether firms are not able to attract external funds to finance R&D. They analyze data for the Republic of Ireland where mainly due to the expansion of R&D intensive high-tech sectors high growth was observed. The authors suggest that R&D investments are liquidity constrained. Ali-Yrkkö (2004), using data on Finnish firm, tests for the impact of public R&D funding on private R&D. The author find that receiving public R&D funds increases privately financed R&D, this effect is bigger in large firms, there is no difference in this effect between indebted and non-indebted firms. Additionally he claims that companies' debt has a negative effect on privately financed R&D and profit increases private R&D. Tiwari et al. (2007) find that financial constraints affect investments in R&D. R&D expenditures depend on share of sale of innovative products in total sale, profitability, size. Ughetto (2008) verifies the relationship between finance and R&D investment for Italian manufacturing firms. The results show that firms don't use debt to finance R&D but rather internal cash flow.

Brown, Fazzari i Petersen (2009) using microeconomic data analyze the mechanism that connects finance and growth. Based on data for publicly traded, high-tech firms, they verify whether supply shifts in finance can explain the 1990s R&D boom and subsequent decline. GMM procedure to estimate dynamic R&D models dives that for young firms internal and external equity finance significantly influence R&D. The financial effects for the young firms explain most of the 1994 to 2004 aggregate R&D cycle. For mature firms there was no boom in R&D. The authors claim that their findings are consistent with a shift in supply of finance and are difficult to explain with a demand-side.

Gorodnichenko i Schnitzer (2013) investigate how financial constraints affect Central European firms' innovation activities. The cross-country analysis of firms' behavior at the micro level suggests that financial constraints restrain the ability of domestically owned firms to innovate. Domestically owned firms are hampered in their innovation activities by difficult access to external finance. Foreign-owned firms are much less sensitive to financial constraints.

The problem of undertaking development activities may depend on business cycles. The analysis of the impact of company's financial resources on R&D expenditures in the light of financial shocks was undertaken by Brown and Petersen (2011). They test whether firms use cash reserves to smooth their R&D expenditures. Based on dynamic R&D models estimates the authors find that firms most likely to face financing constraints rely extensively on cash holdings to smooth R&D, whereas companies less likely to face financing frictions tend to smooth R&D without costly cash holdings.

Klette and Moen (2011) using data for Norwegian high-tech companies examine the investment in R&D for firms receiving direct R&D grants from different public sources. The authors verify whether public R&D subsidies result in a net increase or decrease in R&D expenditure. It occurs that R&D granted firms do not increase their privately financed R&D. In the long-run they find positive effects, which means that temporary R&D subsidies enhance firms to increase R&D expenditures even after the grants have expired.

Brown, Martinsson and Petersen (2012) underline that determining whether financing constraints matter for R&D is important for detecting the link between finance and economic growth. Studying European firms they claim that availability of finance is significant for R&D when firm efforts to smooth R&D with cash reserves and firm use of external equity finance is controlled. The authors emphasize the role of external equity in financing R&D, better access to equity finance can increase R&D investment.

The determinants of the probability that a small young firm invests intensively in R&D were analyzed by Audretsch, Segarra and Teruel (2014). The authors find that initial innovation capacity and cooperation in R&D projects play a key role here. On the other hand, Spanish firms chose non-intensive R&D strategies mainly due to market uncertainty.

Based on empirical literature, inconclusive estimates have been found, which confirms the need of conducting a meta-analysis.

3. DATA AND EMPIRICAL APPROACH

Data used in meta-analysis were collected from the articles described above. Researches for binary dependent variable were excluded from further analysis. Table 1 shows the list of articles taken into account in meta-analysis.

Table following on the next page

Table 1: List of articles used in the meta-analysis

Author (year)	Data	Countries
Aghion et al. (2008)	1993-2004	France
Bhagat, Welch (1995)	1985-1990	USA, Canada, UK, Europe, Japan
Boughesan, Goerg (2003)	1991-1997	Ireland
Bond, Harhoff (2003)	1985-1994	Germany, UK
Brown, Fazzari, Petersen (2009)	1990-2004	USA
Brown, Petersen (2011)	1970-2006	USA
Brown, Martinsson, Petersen (2012)	1995-2007	UK, Sweden, Germany, France, Other Europe
Brown, Borisova (2013)	1980-2008	USA
Hall (1992)	1958-1987	USA
Himmelberg (1994)	1983-1987	USA
Klette, Moen (2011)	1982-1995	Norway
Mulkay, Hall (2000)	1982-1993	USA, France
Tiwari et al. (2007)	2000-2002	Netherlands
Ughetto (2008)	1998-2003	Italy

Source: own study.

4 FINDINGS AND DISCUSSION

In this part of the paper, the publication selection effect, among variables significantly affecting R&D expenditures, was tested. Funnel plots and Galbraith plots were used. Based on theoretical guidelines in the Stanley (2008) article, a meta-regression analysis and an extended meta-regression analysis, taking into account the random effect, was performed.

4.1 Funnel plots and Galbraith plots

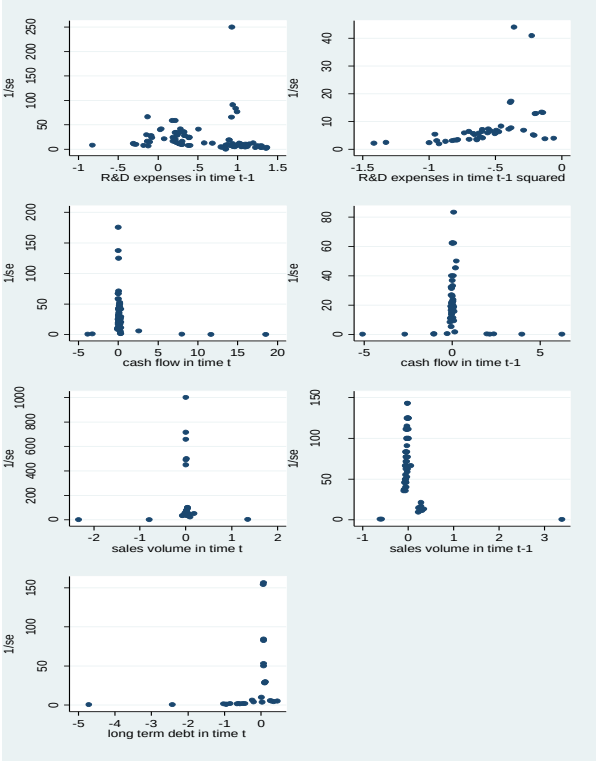
Before statistical testing for publication selection bias the funnel plots and Galbraith plots charts were analyzed. The asymmetry pattern resulting from the sign of received estimates means that the effect of the publication selection of type I is observed. Another case is the selection of publications where special attention is paid to the significance of estimates, regardless of their sign. This effect is called the publication selection of type II.

The funnel graph is a classic method used for the identification of the publication selection bias, it is a scatter plot of all empirical estimates and these estimates' standard error inverses. In the case of the absence of the publication selection bias, the diagram should look like a funnel – wide at the base. The expected shape is determined by heterogeneity of researches. The studies on small samples characterised by larger standard errors therefore lower precision are located at the bottom of the plot which results in more dispersed base of the graph. Asymmetry in the funnel plot is the sign of the publication selection bias.

Figure 1 shows the funnel plots of all studies for the following variables: R&D expenditures in the *t-1* period, the R&D spending squared in *t-1*, cash flow in the period *t*, cash flow variable in the *t-1* period, sales volume in the *t-1* period, sales volume in the *t*, long-term debt in the period t. Based on the funnel plots the effect of the publication selection of type I is expected for cash flow in *t-1* period, R&D expenditures in the *t-1* period, the R&D spending squared in *t-1*. Figure 2 shows the Galbraith plots for analyzed variables. The Galbraith plot is obtained by plotting the t-statistic on the vertical axis and the inverse of the standard error on the horizontal axis. This plots can be used to look for outliers in the effect sizes.

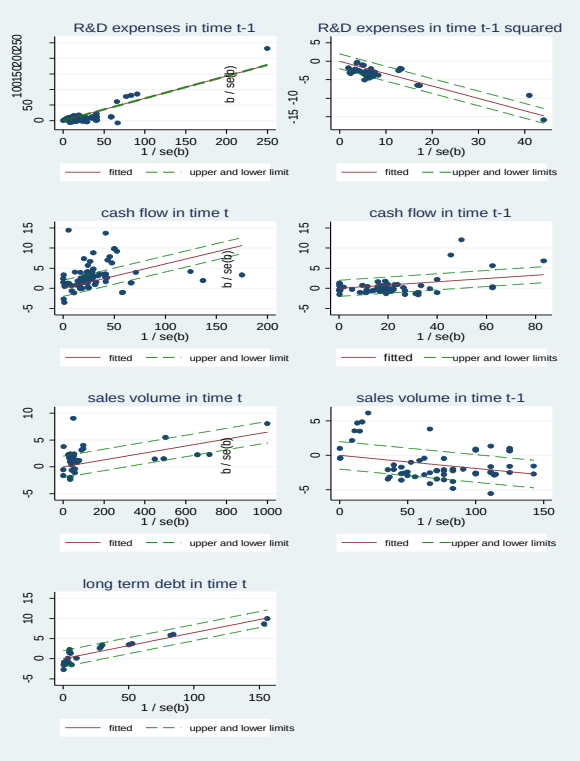
The expectation is that 95% of the studies is within the area defined by the two (green colored) confidence interval lines. We suspect that for the R&D spending squared in *t-1* and volume of sale in the period *t* the effect of the publication selection of type II is not present. The interpretation of the funnel plots and Galbraith plots is subjective by nature and often provides ambiguous conclusions. In order to verify the publication selection bias meta regression analysis (MRA) was applied.

Figure 1: Funnel plots



Source: own calculations

Figure 2: Galbraith plots



Source: own calculations

4.2 The precision-effect test (PET) and the funnel-asymmetry test (FAT).

Following the standard MRA methodology (see e.g. Stanley, 2001), we get baseline specification of the meta-regression model. The effects size of interest is estimated on an intercept and a measure of statistical precision, the standard error. Because of heteroscedasticity problem in the baseline regression some transformations were proposed. We divide the baseline equation by standard error and estimate the following model:

$$t_i = \beta_0 + \beta_1(1/se_i) + v_i \qquad [1]$$

where:

- t - standard t statistics for estimated coefficients,
- se - standard error,
- v - error term corrected for heteroscedasticity,
- i - observation index

Testing for β_0 in the above equation is called funnel graph's asymmetry test (FAT). Stanley (2008) argues that the meta-regression model can be used also for estimating the true empirical effect after having controlled for publication bias, so called precision-effect test (PET). $\beta_1$can be interpreted as an empirical effect corrected for the publication selection effect.

Table 2 reports the FAT and PET. The FAT indicates the presence of bias. Based on results we find negative publication bias for R&D expenditures in the $t-1$ period, the R&D spending squared in $t-1$, cash flow in the period $t-1$. Positive selection bias was detected for sales volume in the period t and cash flow in the period t.

Table 2: Basic MRA for FAT and PET

	R&D expenditures in *t-1* period	R&D expenditures squared in *t-1* period	Cash flow in *t* period	Cash flow in *t-1* period	Long-term debt in *t* period	Sale in *t* period	Sale in *t-1* period
β_1(PET)	0,811***	-0,245***	0,019	0,064***	0,069***	0,004***	-0,023***
	(0,000)	(0,000)	(0,117)	(0,000)	(0,000)	(0,006)	(0,005)
β_0 (FAT)	-6,050***	-1,481***	2,340***	-0,848*	-0,392	1,041**	0,373
	(0,000)	(0,000)	(0,000)	(0,051)	(0,151)	(0,022)	(0,562)
N	95	46	77	58	29	35	59
R^2	0,791	0,708	0,032	0,236	0,860	0,201	0,128

Notes: ***, **, * stands for 1%, 5%, and 10% level of significance. Figures in brackets are *p-values*.

4.2 Sources of heterogeneity

The MRA model (equation [1]) was then extended by a set of moderator variables determining the publication selection effect and variables affecting the magnitude of real empirical effect. The advantage of the extended MRA approach (Equation [2]) is the joint estimation of the publication selection effect and the potential impact of other variables on the expected flexibility of spending on R&D.

$$t_i = \beta_0 + \sum \gamma_j K_{ij} + \beta_1 (1/se_i) + \sum \alpha_k Z_{ik}/se_i + v_i \qquad [2]$$

where:

t - standard t statistics for estimated coefficients,

Z - moderator variables, variables determining the publication selection effect,

K - variables affecting the magnitude of real empirical effect,

other as above.

There are two popular methods of estimation of the above equation, the fixed-effect model and the random-effects model (see for example Borenstein et al., 2010). Although these two models are based on similar formulas, and sometimes give similar estimates they are not interchangeable. In fact, the models represent fundamentally different assumptions about the data. The choice of the appropriate one is crucial to ensure that the statistics are estimated correctly. In the fixed-effect model it is assumed that all studies in the analysis share a common effect size, whereas in the random-effects model the assumption is that there is a distribution of true effect sizes, and we aim to estimate the mean value of this distribution. Under the random-effects model the confidence interval are wider and the weights are more similar to each other than under the fixed-effect model (large studies lose influence while small studies gain influence). In our meta-analyses the random-effects model constitutes the more appropriate choice.

Table 3 lists the potential sources of heterogeneity of the findings in the considered studies. We take into account the following factors: countries, estimation and publication characteristics. We construct dummy variables for models estimated for European countries versus other locations (USA, Canada, Japan), for models estimated with system GMM versus other method of estimation, for models from published articles versus working papers. All variables presented in Table 3 were included in the regression equation as a set of *K* and *Z* variables according to the general to specific modelling methodology. Variables are included in both categories, *Z* and *K*, because they can potentially affect the magnitude of real empirical effect (vector *K*), as well as the occurrence of publication selection (vector *Z*).

Table 3: Definition of variables

Moderator variable	Definition
t statistics	Dependent variable
1/se	Precision of estimated coefficient, do testowania efektu rzeczywistego
Europe	Dummy: 1 if model is estimated for European countries, 0 otherwise
SystemGMM	Dummy: 1 if model is estimated with system GMM, 0 otherwise
Published	Dummy: 1 if model is from published article, 0 otherwise

Source: own calculations

Table 4 presents the results of the extended MRA with a random-effect, estimated with the Method of Moments. As mentioned, in our meta-analyses the random-effects model constitutes the more appropriate choice, which means we don't assume that all studies in the analysis share a common effect size. We observed that some of the moderator variables, included in the equation are not statistically significant. Moderator variables are not equally important in explaining the potential source of heterogeneity. In all models, the joint test of variables ($F\ test$) rejects the null hypothesis of a zero joint effect. It should be noted that the interpretation of the real effect in the extended model is more complicated. The empirical effect is now represented by the combination of the variables *Z*, while the set of variables *K* together with the constant is an indicator of the existence of publication selection. Particular attention should be paid to the results of the test on the total significance of parameters affecting the existence of selection (vector variable *K* and constant).

In particular, the effect of the publication selection occurred for variables: R&D expenditures in the $t-1$ period, the R&D spending squared in $t-1$, cash flow in the period t, long-term debt in the period t, sales volume in the $t-1$ period. The hypothesis about the existence of the publication selection effect for the cash flow variable in the $t-1$ period and the sales volume in the period t was rejected. The results emphasize that estimators depend systematically on model specification and estimation method.

Table 4 shows also the results of the $Tau2\ test$ for within-group variation of the residuals. In random-effects meta-analysis, the extent of variation among the effects observed in different studies is referred to $Tau2$. For models estimated with the $Method\ of\ Moments$, we obtain the statistic of residuals heterogeneity (Q), where null hypothesis means that fixed-effect model is correct. The Q values for the estimated models reach high values with $p-values$ equal to zero. The real value of the real effect varies probably between surveys, which means that the data are not consistent with the assumption of fixed-effect models.

Table 4: Extended MRA for FAT and PET with random-effect

	R&D expenditures in *t-1* period	R&D expenditures squared in *t-1* period	Cash flow in *t* period	Cash flow in *t-1* period	Long-term debt in *t* period	Sale in *t* period	Sale in *t-1* period
β_1	1,003***	-0,312***	-0,019	0,073***	0,058***	0,057*	-0,577***
	(0,000)	(0,000)	(0,111)	(0,007)	(0,000)	(0,095)	(0,000)
Published/se	-0,647***					-0,049	0,537***
	(0,000)					(0,141)	(0,000)
SystemGMM/se	-0,403			-0,086**		0,065	-0,534***
	(0,125)			(0,032)		(0,119)	(0,000)
Europe/se	-0,329**				0,026***	-0,055	0,573***
	(0,027)				(0,005)	(0,104)	(0,000)
Published	13,48360**		3,401***		1,562***		-1,945
	(0,013)		(0,000)		(0,001)		(0,174)
SystemGMM	10,662**	-2,321	-4,676***				
	(0,028)	(0,100)	(0,000)				
Europe							-6,502***
							(0,000)
β_0	-13,751***	0,957	3,452***	0,075	-0,958***	0,417	6,005***
	(0,004)	(0,541)	(0,000)	(0,935)	(0,009)	(0,581)	(0,000)
N	95	46	77	58	29	35	59
$Tau2\ Test$	Q(88) = 9,2e+06	Q(43) = 29370,99	Q(73) = 4,3e+05	Q(55) = 4,0e+05	Q(25) = 17894,53	Q(30) = 5,2e+05	Q(52) = 7,6e+05
	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)

Notes: ***, **, * stands for 1%, 5%, and 10% level of significance. Figures in brackets are *p-values*.

In addition, the conclusions from the qualitative analysis of literature allow to choose the Generalized Moment Method (GMM) as the best method of estimation. It enables dynamic estimation of the regression equation for R&D investments taking into account changes in the amount of available funds for short-term investments and in other financial variables.

5. CONCLUSION

We explore the determinants of corporate research and development (R&D) expenditures. We focus on one specific aspect that has not been taken into consideration: the publication selection bias. Expenditure on research and development is a key indicator of innovative efforts. Based on empirical literature, inconclusive estimates have been found. This meta-analysis reviews the heterogeneity of empirical results from researches in different economies through a larger more comprehensive data set. The main financial indicators, such as cash flow, liquidity ratio, long-term liabilities, sales volume are of most interest. We investigate how the inconsistencies in the published findings are affected by publication bias, characteristics of the data, estimation techniques, and model specification. We take into account 124 estimates from published empirical studies. We use meta-analysis to combine, summarize, and investigate the reported estimates. In order to detect bias in meta-analysis funnel plots and Galbraith plots, followed by statistical testing using meta-regression, were analyzed. Our results indicate that there is an evidence of publication bias. In particular, the effect of the publication selection occurred for variables: R&D expenditures in the *t-1* period, the R&D spending squared in *t-1*, cash flow in the period *t*, long-term debt in the period *t*, sales volume in the *t* period. The hypothesis about the existence of the publication selection effect for the cash flow variable in the *t-1* period and the sales volume in the period *t* was rejected. Our results emphasize that estimators depend systematically on model specification and estimation method.

In addition, we point Generalized Moment Method as the best method of estimation. It allows to estimate the dynamic regression for R&D investments taking into account changes in the available funds.

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THE IMPACT OF PUBLIC EXPENDITURES ON ECONOMIC GROWTH IN THE POST TRANSITION COUNTRIES OF THE EUROPEAN UNION - PANEL DATA ANALYSIS

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ABSTRACT

The endogenous growth models (Lucas and Romer) represent the theoretical basis for the study of the impact of fiscal policy on economic growth. Using their findings, Barro has created a model explaining how fiscal policy can affect the rate of GDP growth. In defining this impact he uses: productive and unproductive expenditures, and distortionary and non-distortionary taxation. The findings on the impact of fiscal policy on economic growth vary depending on the sample of countries, the period under investigation, the methods of analysis used as well as the used fiscal variables. Recent research using panel data shows that the impact of fiscal policy on economic growth is significant, but the direction of this influence is often ambiguous. Therefore, the main goal of this study is to determine the direction and intensity of the impact of public expenditures on economic growth in the post-transition countries of the EU. In order to achieve this goal, an empirical model is estimated using dynamic panel analysis on a sample of eleven countries. Empirical analysis identifies the capital expenditure (public investment) and expenditure on education as productive public expenditures.

Keywords: *fiscal policy, economic growth, public expenditures, productive expenditures, unproductive expenditures, panel analysis*

1. INTRODUCTION

A theoretical background for investigating the impact of fiscal policy on economic growth was provided in endogenous growth models as presented in Lucas (1988) and Romer (1990). Using their findings Barro (1990) introduced a mechanism through which fiscal policy can affect GDP growth rate. Endogenous growth models assume a theoretical classification of public expenditures and public revenues into 4 categories (Kneller et al, 1999), which will be also used in this paper: a) productive expenditures, b) unproductive expenditures, c) distortionary taxes, d) non-distortionary taxes. Expenditures are classified according to their contribution to production and productivity of private capital, and consequently to economic growth (Zagler and Durnecker, 2003). Accordingly, expenditures that affect production and/or productivity of capital, and thus increasing the growth rate, are considered as productive expenditures, while the remaining expenditures are considered unproductive. Note, however, classification of certain expenditures into unproductive need not necessarily mean that they are unneccesary or harmful, this may only mean that their potential effects on economic growth and welfare are

difficult to assess (Dalić, 2012). Classification of taxes into distortionary and non-distortionary in Barro (1990) is done according to their impact on decisions by private sector on savings and investment. Taxes that affect the decisions of households and firms on savings and investment, i.e. which do not increase investment in physical and human capital are classified as distortionary. On contrary, taxes that do not affect these decisions, i.e. increase investment, and through that economic growth are classified as non-distortionary. Given the above classification the goal of the present paper is to determine which public expenditures affect economic growth positively and which negatively. Based on the findings of this investigation, public expenditures in post-transition EU countries will thus be classified in productive and unproductive. The paper is structured as follows. Section 2 presents a brief literature review as a background for empirical investigation that follows. Section 3 defines the econometric model to be estimated and presents the main findings. Section 4 concludes.

2. LITERATURE REVIEW

Classification of expenditures in productive and unproductive differs significantly across countries. Statistical offices in post-transition countries define expenditures by functional and economic classification. Although economic classification is more often used in economic research, none of the above classifications is sufficiently adequate for assessing the impact of fiscal policy on economic growth. In consequence, quite often a precise distinction between productive and unproductive expenditures is not possible. For example, in most of the empirical studies expenditures on education are considered as productive given that they have a positive impact on growth. However, within the functional category of expenditures on education one can find expenditures that have different economic purpose (wages, expenditure on material resources and energy, subsidies to public companies) with different effects on economic growth. The same economic category of expenditures (wages, subsidies) may have a different impact on economic growth depending on which subject in the public sector it is given to. These sort of problems may be found in majority of empirical studies. Therefore, some authors use the functional classification (Kneller et al, 1999; Gemmel et al, 2011), whilst a large number of economic investigations is conducted using the economic classification of expenditures (Gupta et al, 2005; Angelopoulus et al, 2007; Alonso and Furceri, 2008). Barro (1989) is one of the prominent authors who through the use of cross section analysis investigates the effect of fiscal variables on economic growth. He uses a sample of 98 countries to assess the long term effects of different fiscal variables on economic growth. This study finds a statistically significant and negative impact of current public expenditures on GDP growth, while the impact of capital expenditures seems to have a modestly positive impact. In the 1990s cross section analysis starts to be combined with the time series analysis. Levine and Renelt (1992) in their review of regressions across countries find a great disparity in results depending on the changes in control variables. Deverajaan et al. (1996) find that the impact of public expenditure depends on the initial level of expenditures. Thereafter, majority of the empirical studies do not include in their investigations developed and less developed countries simuntaneously, which was the case quite often in previous studies. Thus, it seems that homogeneity of the countries in the sample under investigation represents a very important determinant for obtaining precise results. In a study investigating the effects of fiscal variables on economic growth Gerson (1998) finds that expenditures on education and health have a statistically significant and positive impact on GDP growth. Caselli et al. (1996) also find a positive impact of expenditures on education on economic growth. Zagler and Durnecker (2003) conclude that expenditures on education and public infrastructure positively affect the growth rate. Investigating the impact of public expenditures on a sample of less developed countries Landau (1986) finds a nonlinear impact of defence expenditures on GDP growth.

Namely, at relatively low levels of defense expenditures their impact on economic growth is positive, whilst this impact seems to be changed with the increase in this expenditure. Empirical studies using panel data indicate that the impact of fiscal policy on economic growth is statistically significant, but the direction of that impact can be both positive and negative. The above mentioned studies show important differences both in their aims and methodologies, as well as in the sample of countries and time periods under investigation. Given that panel data methodology has been very rarely conducted on a sample of post-transition EU countries to investigate the impact of public expenditures on GDP (Dalić, 2013), the present paper represents a valuable contribution to empirical literature.

3. EMPIRICAL ANALYSIS

3.1. Data and sample

Empirical investigation will focus on the following 11 post-transition EU countries: Estonia, Latvia, Poland, Czech Republic, Slovakia, Hungary, Croatia, Slovenia, Romania and Bulgaria. The period under investigation is 1995 to 2015. The time period to be investigated is determined by the availability of the data. Namely, most of the data for Croatia and Slovenia is available only since 1995. Based on the descriptive analysis (available upon request) one can conclude that for none of the variables the data is available for all countries and for all years. Given that, in the empirical investigation we will use an unbalanced panel model. Fiscal variables refer to the consolidated budget of the general government and they are expressed as a share of GDP. All the data used in empirical investigation are annual data. The sources for the data are the data bases of the World Bank, European Union (EUROSTAT) and European Commission (AMECO). The dependent variable in the regression analysis is real GDP growth. Its values in the model will be logarithmically transformed to remove the problem of heteroscedasticity.

Unlike the previous studies which use the fiscal data for the central government (Mirdala, 2013), in our empirical investigation we use the fiscal data for the general government. Namely, the data for the general government are more homogenous as compared to that for the central government, given the different levels of fiscal decentralisation across countries. In addition, to obtain the estimates of the effects of fiscal policy as precise as possible, public expenditures and revenues need to be investigated in a disaggregated form.

When investigating the relationship between growth and fiscal variables a problem of endogeneity can emerge. The problem of endogeneity can be eliminated by including a number of control variables in the growth regressions. Following some of the previous studies, which are similar to ours (Afonso and Furceri, 2008; Mirdala, 2013) we use four control (not fiscal type) variables: labor (work) force, private investment, terms of trade and population[1]. Including the factors of production that refer to labour (work force) and capital (private investment) as the control variables is in accordance with the above mentioned theoretical and empirical studies.

3.2. The model

In the equation of economic growth a problem of endogeneity of regressors can emerge. The question is whether higher economic growth rates stimulate public spending and taxation[2], or the relationship is reversed, or it is possible that there is a mutual relationship. If fiscal variables are not exogenous, conclusions that are based on cross-section analysis or static panel analysis may be wrong.

[1] Given that the census is done once in ten years, this variable represents the average annual value.

[2] *Wagner's law.*

Using a static panel analysis, Kneller et al. (1999) show that the exact specification of the budgetary constraints and reliable classification of fiscal variables leads to totally different results on the effects of fiscal policy on economic growth in comparison to earlier studies. Using static panel models, Bleaney et al. (2001) claim that the relationship between fiscal policy and growth depends on how the budgetary constraints are included in model. That approach requires the exclusion of at least one variable of budget constraints from the regression equation in order to avoid the problem of multicollinearity. In other words, those elements of the budget that are not included in the regression are an implicit funding source for other variables included in the regression. Following the above cited studies, in this paper we will use dynamic panel model in order to reduce endogeneity problem to a minimum. Fiscal variables can affect growth through several periods. This may be especially pronounced for some categories of public expenditure that can have some effect on growth at a time when they are implemented (*t*), but also a somewhat different effect in subsequent periods (*t+1, t+2,…t+n*). The lack of robustness in previous estimates (Bassani and Scarpetta, 2001; Gupta et al., 2005) is a consequence of neglecting of the dynamic connection between fiscal variables and growth. However, before defining the model it is necessary to identify the above mentioned budget constraints.

The novelty in endogenous growth models presented by Barro (1990) and Barro and Sala-i-Martin (1992) is the introduction of fiscal policy as a determinant of the equilibrium level of GDP and the growth rate of GDP. The authors define the production function as follows:

$$Q = AC^{1-\alpha}P^{\alpha} \tag{1}$$

where *C* is private capital, while *P* indicates productive expenditures. The government attempts to balance the budget by introducing a tax on the total production (*d*) and lump-sum or in this case non-distortionary taxes in the amount of *ND*. The budget constraint can be expressed as:

$$nP + UP = ND + dnQ \tag{2}$$

where *UP* stands for unproductive public spending (or unproductive expenditures), while the *n* refers to the number of producers. Using the utility function, Barro and Sala-i-Martin (1992) define a long term growth rate in the above model as follows:

$$Y = a(1-d)(1-\alpha)A^{1/(1-\alpha)}(P/Q)^{\alpha/(1-\alpha)} - b \tag{3}$$

where the *a* and *b* are constants which represent the parameters of the utility function. Equation (3) shows that the growth rate decreases by increasing the distortionary taxes (*d*) and increases with the growth of productive expenditures (*P*), while the growth rate is not affected non-distortionary taxes (*ND*) and unproductive expenditures (*UP*). In order to empirically test this theoretical model we assume that economic growth *Y* at time *t* is a function of fiscal (*F*) and non-fiscal variables (*NF*).

$$Y_t = \alpha + \sum_{j=1}^{m}\gamma_j F_{j,t} + \sum_{i=1}^{k}\beta_i NF_{i,t} + \varepsilon_t \tag{4}$$

As mentioned earlier one element from the group of fiscal variables must be omitted from the equation (4) to avoid perfect collinearity. This omitted variable thus represents the compensating element within budget constraints, i.e. the implicit funding source for other fiscal variables included in the equation. Kneller et al. (1999) suggest the omitting of those fiscal variables that according to theory have no direct impact on the production function. However, the possible heterogeneity of the countries in the sample can make it difficult to identify a particular fiscal category that would be neutral in all countries. In this case, the estimation coefficient on fiscal variables should be interpreted as the net effect (γ_j-γ_m) of certain fiscal variables that remains after the release of other variables.

Using equation 4 and the characteristics of dynamic panel autoregression model we estimate the following empirical model:

$$GDPG_{i,t} = \mu_i + \nu_t + \sum_{j=1}^{p} \alpha_j GDPG_{i,t-j} + \sum_{s=0}^{q} \beta_s F_{i,t-s} + \gamma_i NF_{i,t} + \varepsilon_{i,t} \quad (5)$$

where *i* denotes the country code ($i=1,....,N$), t stands for the time ($t=1,....,T$), μ_i represents the spatial effect (specificity of each country, regardless of time, e.g. the starting level of GDP, human capital, etc.), and v_t the time effect. $GDPG_{i,t}$ stands for the logarithm of GDP growth for the country *i* and at time *t*, $GDPG_{i,t-j}$ denotes the GDP growth of the country *i* at time *t-j*, *F* represents a set of fiscal and *NF* set of non-fiscal variables that will be included in the analysis. $\varepsilon_{i,t}$ represents an independent and identically distributed random variable.

Model (5) will be estimated using the *generalized methods of moments* (GMM) developed by Arellano and Bond (1991), in which parameters are estimated using the variables transformed into first differences to remove the unobserved effect associated with each country.

One of the problems in the research studying the relationship between fiscal variables and economic growth is endogeneity. One of the ways to deal with the problem of endogeneity in growth regressions is to use instrumental variables.[3] In order to control the endogeneity, GMM estimator uses the data with a time lag as instrumental variables. After model estimation, we tested the validity of instrumental variables and the presence of autocorrelation of residuals.

3.3. The results

The results of empirical estimations are shown in Table 1. For correct interpretation of the estimated coefficients, it is important to identify the omitted variables in each model. The impact of the increase in certain categories of public expenditures on economic growth is estimated in the models 1-5. The omitted variables reflect the underlying assumption on the financing of the individual components of public spending, as discussed earlier. So, in all models all the components of expenditures are left out except of those whose impact is estimated. The estimated coefficient implies that the increase in a certain fiscal variable is financed by a corresponding change in the omitted variable. This means that the interpretation of the coefficient of each fiscal expenditure variable, for example, the compensation of employees indicates a change in the growth rate caused by the increase in compensation of employees (1% of GDP) with an equivalent reduction in other components of public spending. The effects of various categories of public revenues on economic growth are estimated in models 6-8. Omitted variables in each model represent the remaining components of public revenue. Therefore, the estimated coefficient indicates the change in the growth rate caused by the increase in a certain category of revenues (1% of GDP) compensated by an equivalent reduction in other (omitted) revenues. The values reported in Table 1 represent the estimated coefficients based on equation 5 using the generalized method of moments (Arellano and Bond, 1991). Model 1 reveals a negative relation between the current expenditure and economic growth. A statistically significant and negative relation is also present for social benefits (Model 3) and subsidies (Model 4), while compensation of employees was not found to be statistically significant (Model 2). The only category of public spending for which we can safely say that it has a positive effect on economic growth are capital expenditures (investments). This result suggests that in the post-transition countries productive expenditures include public investment. The increase in investment by 1 % of GDP, financed by an equivalent reduction in current expenditure (omitted variables), will cause an increase in GDP growth by 1.21 percentage points. Thus, given the terminology introduced earlier in the paper, unproductive expenditures include subsidies and social benefits, while the compensation of employees on the basis of the available estimates can not be classified (due to statistical insignificance).

[3] See Bleaney et al. (2001), Gupta et al. (2005)

Table 1: Panel analysis results, GMM estimation, post-tranisiton countries, 1995-2015, economic classification of expenditure, dependent variable – logGDP growth

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Current expenditure (consumption)	-0,567** (0,295)							
Compensation of employees		-0,216 (0,351)						
Social benefits			-1,472** (0,589)					
Subsidies				-0,852*** (0,487)				
Capital expenditures (investments)					1,210*** (0,533)			
TOTAL EXPENDITURES						-0,631*** (0,290)	0,131* (0,092)	0,491 (0,121)
Revenues from direct taxes						-0,721 (0,109)		
Revenues from social security contributions							-1,120*** (0,341)	
Revenues from indirect taxes								0,397** (0,151)
TOTAL REVENUE	-0,472*** (0,106)	-0,659** (0,231)	-0,587*** (0,120)	-1,344*** (0,367)	-1,962** (0,471)			
Private sector investments	0,109 (0,041)	0,113** (0,112)	0,092* (0,021)	0,007 (0,003)	-0,096 (0,010)	0,152* (0,063)	0,085 (0,009)	0,081 (0,021)
The growth rate of the labor force	0,421 (0,210)	0,521* (0,244)	0,392* (0,187)	0,491 (0,201)	0,536** (0,246)	0,365 (0,198)	0,450* (0,217)	0,510 (0,233)
Terms of trade	0,071 (0,004)	0,032 (0,003)	0,009 (0,002)	0,041 (0,007)	0,006 (0,002)	0,018* (0,003)	0,008 (0,002)	0,011* (0,008)
Population growth rate	-1,521 (0,981)	-1,392 (0,877)	0,892 (0,912)	-2,011 (1,543)	0,792 (1,120)	-2,012 (1,431)	1,341 (1,110)	0,943 (0,759)
Number of observations	187	187	187	187	187	187	187	187
Sargan test (p-value)	0,412	0,301	0,234	0,180	0,291	0,201	0,411	0,221
AR (1) test (p-value)	0,095	0,171	0,201	0,012	0,161	0,013	0,117	0,093
AR (2) test (p-value)	0,252	0,342	0,357	0,411	0,313	0,452	0,328	0,310

Notes: Significance levels: * significant at 10%, ** significant at 5%, *** significant at 1%. Standard deviation values are in parentheses.

The signs of the estimated coefficients on the control variables are in line with theoretical expectations, but at a low level of significance. The positive coefficient on the variable private investments follows standard economic theory according to which increase in the quantity of production factors causes an increase in production. The same applies to labor force, although

some previous studies (Bose et al., 2007) found negative coefficients for developing countries. The coefficient on terms of trade is usually positive. In this research, the estimated coefficient is positive but insignificant, while some authors find a negative relationship between openness and growth (Gupta et al., 2005; Afonso and Alegre, 2008). The diagnostic tests reported at the bottom of Table 1 suggest the the estimated models are well specified. Based on the high *p*-value of Sargan test the null hypothesis is not rejected, which means that there is no correlation between the residuals and instruments. Therefore, the Sargan test supports the validity of GMM estimators and justifies the use of selected instrumental variables. In the estimated models the null hypothesis about the first and second order autocorrelation of the first differences of residuals is not rejected, which indicates that the estimated parameters in the model are consistent. The results of the estimated econometric model according to three major functional categories of expenditures[4] are shown in Table 2. Omitted variables in each model are the remaining expenditures, as explained earlier. Based on these estimates, it is possible to classify the expenditures on social security in the category of unproductive, given the statistically significant negative coefficient on this variable. It can be argued that expenditures on education are the only category of productive expenditures. A negatively estimated coefficient indicates that health expenditures negatively affect economic growth, but note however, the estimated coefficient is not statistically significant.

Table 2: Panel analysis results, GMM estimation, post-tranisiton countries, 1995-2015, functional classification of expenditure, dependent variable – logGDP growth

	Model 1	Model 2	Model 3
Health expenditures	-0,134 (0,212)		
Education expenditures		0,542** (0,312)	
Social security expenditures			-0,451*** (0,292)
TOTAL REVENUE	-0,512*** (0,202)	-0,434*** (0,181)	-0,345*** (0,110)
Private sector investments	0,152* (0,037)	0,122* (0,093)	0,097** (0,188)
The growth rate of the labor force	0,235 (0,094)	0,321* (0,183)	0,251 (0,095)
Terms of trade	0,032 (0,005)	0,007 (0,003)	0,021 (0,008)
Population growth rate	-1,921 (0,582)	-0,734 (0,912)	-0,723 (0,837)
Number of observations	187	187	187
Sargan test (p-value)	0,213	0,139	0,209
AR (1) test (p-value)	0,031	0,008*	0,091
AR (2) test (p-value)	0,312	0,261	0,205

Notes: Significance levels: * significant at 10%, ** significant at 5%, *** significant at 1%. Standard deviation values are in parentheses.

[4] We analyzed the following expenditure categories: health expenditures, education expenditures and social security expenditures. These categories cover about 2/3 of the total public expenditures, i.e. about 30% of GDP. Other functional categories of expenditures are not included in the analysis on the basis of previous empirical research showing that their impact on economic growth is not significant (except for defense expenditures in developed countries).

4. CONCLUSION

This paper used a dynamic panel model to identify the categories of non-distortionary taxes and productive expenditures. Estimated coeeficients suggest that, according to economic classification, investment, i.e. capital expenditures, may be treated as productive public expenditures. Given the negatively estimated coefficient on total current expenditures, this result suggests a need for restructuring the expenditure side of the budget in a way that unproductive categories of current public expenditures be lowered, in order to increase the capital expenditures. According to functional classification, expenditures on education belong in the productive expenditures. Indirect taxes (taxes on goods and services consumption) should be treated as non-distortionary taxes. Social benefits and subsidies belong in unproductive public expenditures, whilst the revenues from social security contributions are placed in the category of distortionary taxes. Based on these results, it can be concluded that fiscal policy has positive long run effects on economic growth in post-transition EU countries insofar as the productive public expenditures are financed by a combination of lower unproductive expenditures and increased non-distortionary taxes. Given the estimated coefficients on the total public expenditures, public expenditures in post-transition countries on average are not too large and should not be worried about. However, redistribution in the revenues and expenditures structure of the budget are on the other side very much needed. The panel methodology used in this paper successfully removed several of the problems which were identified in previous studies: endogeneity issue, missed-out variables and the dynamic nature of the relationship between fiscal policy and economic growth. An important methodological characteristic, used in this paper, is the adoption of an implicit assumption on financing related to the budget constraint. A consequence of ignoring of the budget constraint is the presence of biased regression coefficients and, unlike the present study, this was the case in a number of previous studies.

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