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Dear readers,

Today I am introducing to your attention a new issue already of established international scientific Journal of Security and Sustainability Issues. This journal tackles wide range of processes and problems, which we encounter in our current lives. It could be claimed that the journal serves as contemporary chronicle of our turbulent reality.

Here new urgent issues are being raised, which contribute to contemplating of security and sustainability phenomena, which transform and obtain new content, which is gradually enriched by increasing number of facets.

Scientists, practitioners, students, society, both, civil and military, are important protagonists of building our secure and sustainable future. Let all of us support on-going discussion, share and come to the best solutions for safe, secure and sustainable future. Since good understanding and correct evaluation of multi-faceted reality is primary precondition of international understanding, which ultimately leads to relevant policy implications for common secure and sustainable wellbeing.

With best regards

Professor VLADO DIMOVSKI
Member of European Academy of Sciences and Arts
Former Minister for Labor,
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RENEWABLE ENERGY POTENTIAL IN THE AUTOMOTIVE SECTOR:
CZECH REGIONAL CASE STUDY

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Abstract. Bearing in mind the instant innovations in renewables and the pressures to adopt ecological behaviors, companies are pushed to make changes in the energy field as well. Especially companies in the automotive sector have begun to implement sustainable production practices. The Czech Republic is not an exception, suggesting that sustainable actions have begun to be more significant at the local level as well. This article addresses the state of the art of using sustainable energy actions, concentrating on the renewable energy in the automotive supplier network within a selected region in the Czech Republic. Analyzing a broad context of renewable energy utilization at the regional level, the researched company sample shows that it is not yet a common practice. The results confirm that renewable energy sourcing needs to find its economic viability or justification in environmental legislation. Only then it can further spread along the automotive supply chain.

Keywords: automotive supply chain, environmental impact, renewable energy sources, sustainable production


JEL Codes: L6

1. Introduction

Global growth trends in vehicle sales make the automotive sector powerful worldwide, reflected in direct and indirect employment and industrial output share (ACEA, 2016). In the Czech Republic, up to 25% of the country’s industrial production and 7,4% of GDP is covered by the automotive industry (Kozelský and Novák, 2015), (Autosap, 2014). It belongs thus to the most important industrial sectors at the national as well as regional level.

Social changes such as urbanization, sharing and circular economy and sustainability concepts (Banaitė, Tamošiūnienė 2016; Strielkowski et al. 2016; Tvaronavičienė 2016; Ahmed et al. 2017) all influence the automotive industry. The transformation of the automobile industry is mirrored in the visionary statement by General Motors’s CEO, who said in 2016, “I believe the auto industry will change more in the next 5 – 10 years than it has in the last 50.” (Barra, 2016). More or less discreet signs show that the automotive industry is undergoing a second revolution both in car production and in use. On one hand, it is connected to cities’ development, their growing needs, and the cost increase of fossil fuel exploitation (Freyssenet, 2011). On the other hand, the revolution is based on connectivity and changing customer attitudes.

Environmental focus is a clear trend in the automotive industry. According to (Kannegiesser et al., 2014), the
transportation sector is among the top sources of greenhouse gas (GHG) emissions. More specifically, significant GHG emissions are produced along the production lifecycle, beginning with raw material exploration to the vehicle end-of-use. As a consequence, automotive companies are forced to develop not only smarter and safer cars, but also cleaner. Companies are pressed to initiate green practices, such as environmental management systems, a green balanced scorecard and green supply chain management. Evidence shows that European vehicle manufacturers have continuously reduced the environmental impact of vehicle production (ACEA, 2016).

Manufacturing of automotive parts is a complex process and belongs to one of the most energy intensive sectors with high energy consumption. Energy is included in many processes in vehicle production, directly or indirectly. The press line, body shell work, material handling equipment, paint finishing system, casting, assembly, inspection and testing all require energy input. Additionally, energy is employed in space heating, steam applications and in the curing ovens of the painting lines (Pardo Martínez, 2011).

Although cars have been equipped to be cleaner, the production complexity has increased affecting also the related energy demand. The tendency of cleaner car production goes hand in hand with technological development. Owing to an energy consumption increase together with the combustion of fossil fuels and volatile conventional energy prices, energy efficiency programs ranging from the thermal insulation of buildings to modern energy supply systems proliferate. Improvement in the energy efficiency of production has resulted in an overall energy consumption decrease of 12.4% over the last decade.

Renewable energy sources (RES) are important part of GHG emission reduction, affecting the climate positively. RES accounted for 24% of electricity generation globally in 2014. More specifically, cumulative renewable electricity installed capacity grew by 8% in 2014 worldwide (from 1,579 GW to 1,712 GW) (2014 Renewable Energy Data Book, 2015). On the other hand, 13.5% of the world energy consumption was covered by renewable energy (including biomass). Nevertheless, it is only about 4.5% when excluding ecologically inconvenient firewood in developing countries (Müller-Steinhagen and Nitsch, 2005).

From the consumption as well as the production point of view, RES are finding their place in the automotive industry. As the automotive companies are willing to develop environmentally-friendly vehicles and introduce sustainable production processes, there is further potential space for RES. To illustrate, innovative automotive companies in Germany are investing in sustainable energy projects as part of their company strategy aligning with “Energiewende” politics.

To sum up, the background for this study was motivated especially by recent clean energy projects and continuous innovations in RES technologies. These sustainability initiatives result in the optimization of energy consumption and a decreased impact on the environment. This article explores the current utilization and future potential of RES in selected automotive supply chain companies in the Czech Republic. The study addresses the highly up-to-date connection between renewables and the automotive industry from the production perspective. A case study approach was chosen to analyze RES consumption and its potential implementation. The background associations to energy and environmental management systems is presented and future trends are outlined.

2. Literature review

The sustainability concept began to be used in connection with ecological and economic systems in 1970s. Later, it was applied in many areas, including the vehicle manufacturing industry. The basic sustainability concept of the triple bottom line (3BL) introduced by (Elkington, 1997), combines three dimensions of sustainability: economic, social and environmental. This holistic approach measures their impact on profit, people and the planet. Aligned with Porter strategic differentiation, green business solutions contribute to potential competitive advantage.

Environmental responsibility in form of environmentally friendly and more efficient processes enables thus potential differentiation for businesses. The product and process innovations allow for additional benefits in-
cluding cost savings. From this point of view, the environmental responsibility should be seen as „economic and competitive opportunity, not as an annoying cost or inevitable threat.“ (Porter and van der Linde, 1995).

Based on the literature sources, there is a close association of energy with environmental considerations in regard of sustainability. The most widely applied sustainability reporting guidelines (the Global Reporting Initiative) classify energy as an environmental aspect. As automotive supply chains are affected by energy prices and GHG emissions constrains, they increasingly implement reducing strategies and create thus solutions through the overall manufacturing process to reduce waste in energy consumption. The authors (Golinska and Kosacka, 2014) present main trends in the energy management in the automotive sector: renewable energy, high-efficiency lighting systems, stand-by systems for equipment, thermal isolation and automated control systems.

As the study concentrates on RES, a convenient definition by the Texas Renewable Energy Industry Alliance (TREIA) needs to be mentioned at this phase: Renewable energy is a resource that is regenerated naturally and originated either directly from the sun (geothermal, photoelectric and photochemical), or indirectly from the sun (hydropower, wind, and photosynthetic energy stored in biomass - organic plant and waste material, landfill gas) (Shin et al., 2016). Generally, RES are seen as more expensive than fossil fuels (Goldemberg, 2007). However, some sorts of clean energy sources are not consistently available, because of weather conditions and climate factors. On the other hand, RES use reduces the environmental impact of production processes and decrease their ecological footprints. Therefore, specific governmental incentives encourage firms in RES adoption. Some authors (Andrade and Puppim De Oliveira, 2015) advocate increasing corporate investment in developing and utilizing RES resources. Simultaneously, the global climate and energy governance have been supporting the effective RES implementation.

Diversification of the energy portfolio mix contributes to the energy security and affects positively vulnerability. In this context, renewable energy sources seem to be affordable means of relief from external energy dependency even though distortions of energy markets might take place (Bilan et al., 2017). As mentioned by (Streimikiene et al., 2016), the renewable energy proportion is relevant indicator for sustainable energy development. Based on Eurostat database the Czech Republic with RES proportion 13,4% has been lagging behind some other European countries (for example Lithuania with 23,9% in 2014).

It is important to mention that the overall political, legal and social framework sets the rules for the sustainable energy development. Relevant legal framework in the automotive sector includes EU regulations transferred into national law such as:
- End-Life-Vehicles (ELV directive 2000/53/EC) to prevent waste
- The Directive of type approval of vehicles for reusability, recyclability and recoverability (RRR 2005/64/EC)
- The Directive for the Promotion of Energy from Renewable Sources (Directive 2009/28/EC), which set mandatory national targets (20% RES proportion by the year 2020).

At the organizational level, the International Standards Organization’s ISO 9001 covers overall process of continual improvement and effective business operations. The ISO 14000 standards deal with environmental management providing companies with a framework for evaluating and minimizing the environmental impact of their business operations. This type of certification might be seen as a criterion for companies that have implemented environmental management systems (Mishra and Napier, 2015). The certification of the energy management system ISO 50001 brings together energy efficiency and financial impacts. At the same time it tackles environmental problems with greenhouse gas emissions.

When adopting sustainable measures, comprehensive life cycle approach has been preferred in the automotive industry. Four stages of car life cycle are important from the environmental point of view:
- Design,
- Manufacturing and logistics,
- Utilization
- and end of life (Parkinson and Thompson, 2003)

In each of these stages, energy consumption optimization is possible. Design for sustainability as a theoretical
background is based on the design-for-X (DfX) principles. This approach implements renewable sources of energy as an element of the design for resource utilization and economy. A comprehensive overview of design for sustainability in automotive is provided by (Mayyas et al., 2012). RES belong to the core trends in innovative product design and sustainable manufacturing processes (Jawahir et al., 2007).

A wide range of studies analyze the sustainability issues from different perspectives. Key sustainable practices from the manufacturing perspective in the Chinese auto industry were examined by (Wang et al., 2015). Another study by (Drohomeretski et al., 2015) reviewed literature sources to identify sustainability practices and performance measures in the automotive sector. Some mostly observed environmental practices were eco-design (17.9% of all examined studies), the use of cleaner fuels (14.9%), waste reduction (13.4%) and material reuse (11.9%). Additionally, improved production procedures and internal quality system certification were observed as well. Analyzing environmental aspects and impacts of the automotive industry, authors (Breno Nunes and David Bennett, 2010) identified green activities in production, namely building construction, operations and manufacturing processes.

Some authors proceed further, advocating the positive relationship between corporate sustainability and firm financial performance. A meta-analysis of the corporate environmental performance and corporate financial performance relationship by (Dixon-fowler et al., 2013) supported that it “pays to be green.” Reference (Shin et al., 2016) shows specific association between RES utilization and firm performance, confirming superior financial performance of RES utilizing companies compared to their industry competitors. On the contrary, there are empirical studies showing mixed results not fully supporting environmental management effect on the financial performance. In case of the market reaction to announcements of environmental performance, certain types of announcements were valued even negatively (Jacobs et al., 2010). Some authors come to the conclusion that environmental considerations are influenced by company characteristics: bigger companies with international presence should be more likely environmentally oriented when innovating and tend to be more eco-design oriented. In case of energy reduction no significant differences were found (Peiró-Signes et al., 2014).

The supplier structure plays vital role in the environmental and energy management. Supply chain management can be defined as various types of companies working together in the fields of product, information and finance flow. Most important members in the automotive sector include suppliers, warehouses (tier 1-3), original equipment manufactures (OEMs), distribution centers, dealers and customers. Based on (Sitek and Wikarek, 2014) a representative structure (Fig. 1) of a simple two tier supply chain is presented. Strategic environmental management has been introduced along the whole supply chain, including OEMs and tier suppliers. Some specific energy-related issues, in particular the choice between fossil fuels and RES, need to be considered in the design and operation of modern sustainable supply chains (Ahi et al., 2016). Seen from the supply chain perspective, authors (Bilan et al., 2017) conclude that green supply chain management is driver for the business performance.

![Two tier automotive supply chain](https://example.com/fig1)

*Fig. 1. Two tier automotive supply chain

*Source: based on (Sitek and Wikarek, 2014)*
It can be summarized that renewable energy has been recently one of the essential topics in the field of energy management overreaching to sustainability concepts and sectoral analyses. Contemporary research associated with sustainability and renewable energy use has been emerging. In the study it will be empirically analyzed to what extent is clean energy management important in the plant functioning.

3. Methodology

The research question related to the aim of the paper is defined as follows: What is the potential of RES in the selected automotive supply chain companies in the Czech region Moravia?

The applied research method is based on qualitative multiple case study, including explanatory approach. The methods of qualitative research allowed for intentional non-random sampling. Sample of five automotive supplier companies from automotive sector in the Czech region Moravia were chosen. The respondents’ positions were directly or indirectly connected to either environmental management or energy management.

Primary as well as secondary data were used in the study. The data were collected via a semi-structured questionnaire. To get well structured information, a combination of open-end and closed-end questions was chosen in the questionnaire. Reverse order Likert scale was applied in one question. The data were collected in the period June 2016 – September 2016. Some additional company data (employee numbers and supplier classification) were obtained via Czechinvest database. The qualitative and quantitative information from the questionnaire was analyzed, including companies’ annual reports and web pages. Comparisons to find associations and similarities within qualitative variables were performed.

4. Findings

The Czech Republic has a long tradition in manufacturing industry. Particularly the vehicle manufacturing sector represents a key industry belonging to the major employer. As the industry is globally interconnected, the automotive production networks are organized in vertically integrated supplier chains. The Czech automotive firms can be further classified into assemblers, OEM’s, and three supplier tiers differing by the complexity of manufactured components and by company characteristics (firm size, corporate power they wield in production networks) (Pavlínek and Ženka, 2015). Large suppliers and OEM’s source the Czech market as well as international markets, whereby the main car makers are Škoda Auto, Hyundai Motor Manufacturing Czech and Toyota Peugeot Citroën Automobile.

The company sample for the analysis was chosen so that diverse companies within Moravia region related to the automotive sector are present. The automotive industry in the the Moravia region, being located in the southeastern part of the Czech Republic belongs to the important industrial sectors. The industrial potential including various representatives of automotive supply chain relies in machinery manufacturing, particularly in the area of plastics and rubber (Zlin region) and mechanical engineering companies and representatives of automotive components suppliers (Olomouc region).

Following basic companies’ characteristics give an overview of the sample and introduce the companies’ background. The company A is a production co-operative founded in Zlin in 1965. The company focuses primarily on the manufacturing and distribution of small electromechanical products, parts for the automotive industry. Being an original equipment manufacturing supplier, second company B is a large producer of off-road tires (agricultural, industrial, motorcycle). Although the history of the company dates back to the 1933, the data in this paper relate to the regional plant built in 2013 with the production of radial agricultural tires. With history back to 1930’s, company C operates actively from 1992. The main business area includes production of vehicle tires (automobiles, industrial vehicles, automotive trucks). Company D being the smallest (based on employee numbers) and youngest one - operating since 2012, produces single-purpose machines and is active in vehicle headlights assembly. Finally, company E has diversified production portfolio concentrating on production of plastic parts, laminate tubes and machine tools.
Together with basic company data, table 1 depicts the most relevant survey findings:

– Company energy manager is appointed in 4 (out of 5) companies
– Company energy strategy is not available in each company (3 out of 5)
– Average RES priority is 4 (reverse order Likert scale 1 – 5)
– Generally, RES adoption is expected to have slightly positive financial impact on the companies
– Average renewable energy proportion is 2.5%

<table>
<thead>
<tr>
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<th>Company A</th>
<th>Company B</th>
<th>Company C</th>
<th>Company D</th>
<th>Company E</th>
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<td>650</td>
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<td>tier 1</td>
<td>tier 2</td>
<td>tier 3</td>
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<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
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<tr>
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<td>5</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
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<td>negative</td>
<td>Pay-back period limitation</td>
<td>negligible positive</td>
<td>positive</td>
<td>positive</td>
</tr>
</tbody>
</table>

Fig. 2. RE share and company size

Scaling the priorities in RES investments only confirms current status. Companies with zero RES utilization, report lowest priority in the RES investments. Additionally, negative financial impact from the investment is expected (in one case). To be more specific, pay-back period measure (PBP) being more than three years seems to be a hurdle rate. Three other companies with RES experience see at least negligibly positive effect on the financial performance.

It was also observed that tangible financial benefits together with environmental legislation are the main driver for the current RES utilization. Also flexibility of decision-making in smaller businesses might play a role. On the other hand, fluctuations in solar and wind energy supply caused by weather conditions might be additional burden for baseload demand.

Future trends and developments regarding the RES in the examined automotive businesses concentrate on saving measures and decreasing environmental impacts. The anticipated projects encompass own substation within the plant or solar thermal collector systems for water heating and auxiliary space heating. Other priorities within the broad field of environmental care such as savings related to water consumption or industrial waste elimination were mentioned.

Many of the companies have invested in energy saving initiatives to reduce energy consumption. As a next step, when the saving potential of fossil-fuel-based technologies is exhausted, the RES implementation would make sense. Energy cost savings compared to the initial investment in renewable equipment seem to be the toughest burden to overcome. The research shows challenging task to overcome internal and external barriers within the companies. As the main consideration is related to the pay-back period measure, potential incentives for RES implementation include initial governmental support. Some other potential drivers encompass legal requirements and standards and requirements by stakeholders. Along with financial reasoning, the benefits would include increased competitive position and reduced environmental impact.

5. Conclusions

Based on the study findings and aligned with the literature it can be concluded that RES as a sustainable practice are finding their way to the automotive sector companies. Signs of increased interest can be found at the regional level. Three out of five researched businesses already utilize RES, all of them confirming positive financial impact as well.
It needs to be mentioned that the long-term view of alternative sources of energy is automatically compared to other prospective company projects in an organization (marketing, production capacity expansion, product quality improvement and many others). On the other hand, legislative requirements, potential cost reduction, company image and growing public pressure push forward the motivation to invest in sustainable projects. Multiple case study survey confirmed that energy saving measures and emission reduction play important role within the complex environmental and energy management field. Confirming the results from the literature sources, the sustainable production design starts to play an important role.

However, pro-environmental and energy behavior in the regional automotive assembly industry seems to be still lacking behind current trends in the developed countries. Barriers and drivers for RES adoption need to be further examined. Bottom-up principle in RES adoption needs to be in line with the energy policies. Aligned with some research conclusions (Bilan et al., 2017), healthy energy balance mix of traditional sources and RES should be supported. Municipal projects and community collaboration in sustainable and renewable energy adoption need to be supported as well. Despite obvious barriers such as technological and economic there is a huge potential for behavioral applications and social science contribution.

The limitation of the paper is related to the non-randomness of the sample and sample quantity. Although the study includes representatives from the automotive supply chain varying in the main business, size or legal entity, more companies in the sample would allow for quantitative analysis with more generalizable results.

Possible extension of the research could be an analysis of a representative dataset of automotive companies with application of statistical testing. Also comparison of the renewable energy potential between smaller firms and larger firms, or among the companies within tier groups would bring interesting results. Comparison to the Nordic automotive businesses could indicate sustainable business models for this industry, as Nordic countries utilize high shares of RES within their overall energy consumption. Other related research questions to be answered in the future research include:
- What are the proportions of renewables in the companies along the automotive supply chains?
- What are the effects of instable energy prices on automotive sector performance?
- How are local firms prepared for the new/alternative energy sources?

In conclusion, the market demand for fuel-efficient cars is linked to the sustainable production as well. Along with the development of automobiles running on technologies differing from the internal-combustion engine, the manufacturing and assembly of these cars in facilities powered by alternative energies will evolve. Beginning with major car manufacturers, it is a question of time when the alternative energy sources will spread along the whole supply chain.

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References


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Evaluations of Energy Security Measures: Experience of Different Countries in the Fight Unlawful Use of Electricity and Comparison with Latvia

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Abstract. In the modern world it is hard to imagine any field that would not depend to some extent on electric energy resources; however, the use of electricity is not always legal and general information shows that criminal offences in electricity networks are widespread in the world. Instability in the electricity market is a serious threat to energy supply security in every country and it influences economical, social and political welfare. In order to determine solutions to prevent the above mentioned cases, it is useful to study the experience of legal systems and case-law close to Latvia in relation to the above mentioned criminal offences, as well as to examine the existing problems and particularities of the situation. Taking into account foreign experience in developing legislative acts on prevention of criminal offences related to unlawful use of electricity and their application in practice, this research provides an insight into national legislation and case-law in this field in several countries – the Russian federation, the Federal Republic of Germany, the Republic of Poland, and the Republic of Lithuania. Analysing the results of the research and the real situation, conclusions on the pecularities of electricity thefts, foreign practice and possible solutions to improve the situation in Latvia can be drawn.

Keywords: unlawful use of electricity, legal framework, case-law.


JEL codes: K42, O10, P00

1. Introduction

Criminal liability for an offense committed in the field of electricity has been strengthened in almost all countries of the world, but there are different regulations and understanding of electricity as property in a material sense in the world, therefore there are different solutions for regulatory frameworks in connection with the illegal use of electricity.

International experience in combating illegal use of electricity leads to the conclusion that consumers commit these criminal offenses in both household and industry sector, and every year there is a tendency of increasing the share of these offenses (Energosbyt 2011).

Electricity thefts occur in very different ways, but theft cases can be divided into two groups. First group is a public electricity theft – deliberate damaging of electricity meters, open connections to electric power lines and
the like. The second group is a hidden electricity theft - counterfeiting of seals, insertion of special equipment into meters, hidden connections to electric power lines. Instability in the electricity market is a major threat to energy supply safety in every country and it influences significantly economical, social and political welfare (Šincāns 2014).

Electricity is not considered as property in a material sense in Latvia, because it is not a tangible thing, therefore the Criminal Law does not recognize electricity as a subject of property theft, but its illegal consumption and use is an offense with an avaricious intent, which causes real material damage to the owner (Krastiņš 2007).

There is a similar regulation in Spain, Austria, Switzerland, Cuba and Russia; however, there is a broad discussion among legal scholars on whether energy resources should be included into property conception and whether illegal use of electricity should be classified as a subject of property theft (Semenovich 2015).

Whereas in other countries electricity is recognized as a subject of property theft, for example, in the countries with the Anglo-Saxon legal system (for example, USA, United Kingdom) criminal liability for electricity thefts is established. Thus, for example, Article 13 of the Theft Act (the UK) provides criminal liability for electricity theft with imprisonment for a term not exceeding five years. The Criminal Code in the states of the USA, for example, Paragraph 223 of the New York State Penal Code sets similar regulation. Regulatory framework on electricity thefts of the abovementioned countries provides criminal liability even for not switching-off electrical facilities when leaving the workplace and unauthorised switching-on of other persons' electrical facilities. However, it should be noted that electricity thefts in the abovementioned countries with Anglo-Saxon legal system are rare criminal offences. For example, on April 29, 2010 Life News Online announced unauthorized connection to electrical networks, the manager of the energy company described it as an unprecedented, stupid and life-threatening incident.

In the Netherlands electricity is included into the concept of the subject of property rights and in cases, when persons carry out an unauthorised connection to the electricity network, their offence is classified as a theft. Similar legal framework exists also in Germany, Romania, Turkey and Poland.

In Malaysia, in turn, unauthorized operations with commercial accounting meters are defined as a fraud (Thomas B. Smith 2004).

Several European countries have found a solution for criminal offenses in the field of electricity both at the level of legislation, case-law and doctrine much earlier in comparison with Latvia. For example, the author has found the researches of legal scholars in Germany on criminal offences in energy sector which are dated by 1961 (BayObLG, 28.02.1961 - RReg. 3 St 117/60), unfortunately this publication is no longer officially available.

European countries have identified criminal activities in the electricity market already in the 1960s of the twentieth century; therefore it is only natural that Germany has already compiled an extensive practice in these matters.

Taking into account the experience of foreign countries in developing legislation aimed at prevention of criminal offenses in connection with the illegal use of electricity and their application in practice, this research offers an insight into the national laws, as well as case-law in this field in several countries — the Russian Federation, the Federal Republic of Germany, the Republic of Poland, the Republic of Lithuania.
2. Legal framework for unlawful use of electricity in the Russian Federation

Unlike Latvia, in the Russian Federation (hereinafter – RF) unlawful use of electricity is not included in the content of a special criminal offense.

In the practice of Russia, offenders’ activities are often qualified according to Article 165 Chapter XXI of the Criminal Code of the RF, where damage to property of the owner or legal beneficiary committed by abuse of trust or by fraud, excluding theft criteria, if it is committed at a large scale, shall be punished by a fine not exceeding 4500 EUR, or with forced labour up to two years with or without restriction of liberty for a term not exceeding one year, or with imprisonment for a term not exceeding two years and a fine not exceeding 1200 EUR, or with imprisonment for a term not exceeding one year. In turn, if this offence is committed in a group of persons with prior agreement or if it is committed at a particularly large scale, shall be punished with forced labour up to five years, with restriction of liberty for a term not exceeding two years, or with imprisonment for a term not exceeding five years and a fine up to 1200 EUR, or with imprisonment for a term not exceeding two years.

The subject of the above-mentioned criminal offence is material values – usually these are cash, payment for electricity and other services (Kruglikov 1997).

The object of the criminal offence is damage to property of the victim; it is objectively expressed as causing material harm by abuse of trust or by fraud. Causing damage to property is expressed in such a way that a perpetrator deceives the victim causing damage to property of the latter (avoiding to pay for electricity, gas or other utilities and the like). The subject of criminal offence is not determined in the Criminal Code of the RF, and it is considered as an exceptional case when the legislator characterizing the content of a particular criminal offence determines it as a subject. Russian legal scholar N. I. Panov characterizes the subject of the above-mentioned criminal offence depending on material harm as material benefits intended for transfer or the value of property used without authorization (Rozencvaig 2012).

Abuse of trust means that a person uses contractual or other legal relationships, which are based upon mutual trust, with intention to gain benefit and, as a result, the perpetrator uses victim’s trust in contrary to his interests. Transfer of property interests to the offender voluntarily, by fraud or abuse of trust is the main difference which allows dissociating this criminal offence from a theft, where there is no conscious and voluntary transfer. A criminal offence is committed in a group of persons with prior agreement, if at least two persons, before committing criminal offence, have agreed to commit it together and have done it. The subject of criminal offence is any natural person of sound mind who until the day of committing a crime has reached sixteen years of age. Subjective attitude of the perpetrator to the offence is expressed as a direct intent – he or she is aware of illegality of his or her actions, intents to cause material harm to the victim and wishes to gain profit from illegally obtained material benefit. The value of large scale damage to property exceeds 3700 EUR, whilst the value of a particularly large scale damage exceeds 15 000 EUR. The author has determined that there is a disaffection among the Russian scholars concerning the amount of damage set by the legislator in Article 165 of the Criminal Code, as in a similar Article 159 of the Criminal Code (fraud) liability is defined for an item of property with value exceeding just 150 EUR. The scholars see likeness between Article 159 and 165 of the Criminal Code and propose to state Article 159 in the following way: “For acquisition of other persons’ property or rights to such property or derivation of material benefits by abuse of trust or fraud”. Thus, Article 165 of the Criminal Code of the RF includes reference to the subject of criminal offence (damage to property) like in Germany, Switzerland and Austria.

If according to the Criminal Code of the RF, the Criminal Law of Germany, Austria and Switzerland a person should be punished for fraud if he or she has achieved that the victim of fraud does not use civil liability claim, then according to the Criminal Law of Latvia such crime is not punishable under criminal law, as with such actions a person gains neither property, nor rights to property, but avoids to fulfil obligations (payment for electricity). It should be noted that reference to the subject of criminal offence (property/rights to property) was not included in the Penal Law 1993 of Latvia and formulation of fraud (Leja 2010).
It should be noted that Article 92 of the Criminal Code of the Latvian Soviet Socialist Republic of January 6, 1961 contained a rule of law which is analogical in content to the valid rule of law in Article 165 of the Criminal Code of the RF.

The Law No. 261-FZ “On energy efficiency and necessity for legislation amendments” of the Russian Federation of November 23, 2009 states that manipulation with unauthorized use of electricity undermine national economical and energy security; therefore there has been a discussion on reinforcement of sanctions for damaging electrical energy networks and for unauthorized connections, increasing the time of imprisonment up to five years and a fine up to 7500 EUR; however, if these activities will lead to person’s death or cause emergency, disaster or other serious consequences, it is punishable by imprisonment for a term from five to eight years. In general, reinforced control is paid to combating unauthorized use of electric energy in Russia and liability with actual imprisonment is provided for these actions.

Statistical data on criminal offences defined by Article 165 of the Criminal Code of the RF show that 10784 criminal offences were registered in 2010, while in 2011 – 8567 (Rozencvaig 2012).

Approximately 10 % of the total electric energy is stolen every year in the Russian Federation, and, in comparison with European indicators where this amount does not exceed 3 %, this indicator negatively influences the economic growth of the Russian Federation. The injury margin for the Russian Federation is interpreted as a debt and its amount can be calculated for a period up to three years. The largest number of cases of illegal use of electricity was reported in Sochi.

Illegal use of electricity in Russia is manifested in unauthorized actions of natural and legal persons by installing hidden connections, by connecting to electric energy networks without authorization and deliberately distorting accounting.

In the Russian Federation there are widespread cases when after expropriation of objects new owners do not re-conclude legal relationships. If such relations are found, in Russia, in contrary to Latvia, it is allowed to carry out a recalculation of the unaccounted electricity.

According to summary carried out in the Russian Federation, most of the criminal offences according to Article 165 of the Criminal Code are qualified as minor criminal offences; the following punishments are imposed in most of the cases: forced labour and conviction on probation. For example, in 2010 the court of Irkutsk heard 18 cases according to Article 165 of the Criminal Code and the court mainly determined liability connected to the imprisonment for a term not exceeding six months imposing conviction on probation. Making such judgments the court takes into account the nature of the crime, perpetrator’s personality, caused damage and other circumstances of the case. Perpetrators, in turn, often mention the lack of money and its need for children’s education, and undertake to compensate the damage suffered.

However, there are situations in practice when clients who are using electricity without authorization, attack controllers of power supply companies. Thus, for example, drawing up the act for illegal use, the controller was attacked with an axe by a resident of Buryatia who caused bodily injuries; thus the offender committed two criminal offences, currently the investigation process is carried out.

The author has analyzed and generally supports the experience of the Russian Federation in situations when information on devices which allow decreasing meter readings by using unauthorised actions is spread in the internet. Thus, for example, with Staroyuryevsky District Court judgment of October 7, 2016 the court satisfied prosecutor’s claim on information withdrawal from the portal https://www.youtube.com/watch?v=fx6ELgHgZ78. The court stated that dissemination of information undermines the operation of power supply companies, violates persons’ rights and does not comply with principles and goals specified in legislation.
The summarization of case-law allows formulating the following conclusions (Russkova 2014):

– the lack of technical knowledge of clients and witnesses cannot affect credibility of the act concerning illegal use of electricity, for they verify the fact of drawing-up the act, existence / non-existence of the subscriber or conditions for client’s refusal to sign the act (case No. А33-13220/2012);
– the lack of proof that the client was informed of the act concerning illegal use of electricity indicates the drawing up of the act, ignoring the procedure (case No. А33-2341/2012);
– the act which was drawn up ignoring the set procedure cannot form the basis for a calculation of illegal use of electricity and restrict the client’s rights to receive the service (case No. 33-11622/2012). In the above-stated case the court found unlawful the act which was based only on statements of witnesses about illegal use of electricity, but the power supply company did not inspected the object and did not check the actual condition of electrical facilities;
– the fact of the lack of a seal on a commercial accounting meter gives rights to the power supply company to calculate unaccounted electric energy; moreover, the lack of the fact about damages of a commercial accounting meter do not affect these rights (case No. А33-7729/2012);
– the local municipality is obliged to pay for electricity in objects with ownerless status which are located in the territory of the municipality (case No. A69-1089/2012).

The peculiarities of legal responsibility for illegal use of electricity, which is strengthened in the legal framework of Russia, clearly indicate a tendency for the specialization of a legal regime to ensure effective liability for illegal use of electricity (Svirkov 2013).

Having examined the researches carried out in the Russian federation and analysed case-law situations on illegal use of electricity, several conclusions can be drawn:

– In the Russian federation, as in Latvia, the peculiarities of illegal use of electricity are widespread and there is a necessity to improve the situation.
– the discussion of Russian legal scholars on the inclusion of energy resources in the concept of property and, consequently, qualification of illegal use of electricity as a subject of property theft, is to be supported;
– there is a similarity between Article 159 and Article 165 of the Criminal Code of the RF, and the proposition of legal scholars to state Article 159 in the following way: “For acquisition of other persons’ property or rights to such property or derivation of material benefits by abuse of trust or fraud” is to be supported;
– the position of the Russian Federation that the injury margin is interpreted as a debt and its amount can be calculated for a period up to three years is to be supported.

3. Legal framework for unlawful use of electricity in the Federal Republic of Germany

The history of the Criminal Code (“Strafgesetzbuch”, StGB) of the Federal Republic of Germany (hereinafter – Germany) is a history with endless reforms. Criminal law of Germany with 130 years long traditions and approximately 200 more or less substantial legislative amendments is a direct confirmation of changes that criminal law can face.

In Germany, criminal liability for electricity theft as a criminal offence against property was determined and, consequently, electricity was recognized as property, already in 1990 (Ennekecerus 1950). Therefore, electricity theft is criminalized in Germany already for more than 100 years (Loffelmann 2012).

The current Criminal Code of Germany was adopted on May 15, 1971. Criminal offences against property were included into Section XIX. The first part of Paragraph 248.c of the Criminal Code of Germany states that anyone who uses other persons’ electric energy with intent of appropriation is responsible for his or her offence with imprisonment for a term not exceeding five years or a fine. The second part of the abovementioned article states that an attempt to appropriate another person’s electric energy is punishable, in turn, in the fourth part it is stated that in case of the appropriation, mentioned in the first part, with intent to cause damage to other persons, imprisonment for a term not exceeding two years or a fine is imposed. The necessary condition of the rule of law – criminal proceedings are instituted only on the base of the injured party’s application.
Thus, the formulation of electricity theft in Germany is determined as a deliberate, unlawful take of electricity from other natural or legal persons’ property without compensation with intent of illegal consumption or use for own or another person’s benefit that causes actual material damage to the owner or holder of property. Electricity theft is considered as completed with the moment unlawful action is committed. The subjective attitude of the perpetrator to the offence – unjust enrichment at the expense of another person. The damage is done to the interests of the victim starting from the moment when property is unlawfully taken from his or her possession. It should be noted that an attempt to appropriate another person’s electric energy is punishable under criminal law. This condition indicates that jeopardized property interests of power supply companies in Germany have primary character. In Germany criminal liability is provided also in the case if electricity theft is connected with the intent to cause damage to other persons.

The lower age limit of criminal liability for theft subjects in Germany is 14 years. Criminal liability can be imposed upon subjects from 14 to 18 years only on the condition that they commit theft with a deliberate intent and are aware of unlawfulness of their actions. It is necessary to note that corrective educational measures in compliance with the law “On juvenile judicature” (Jugendgerichtsgesetz – JGG) are imposed upon the above-mentioned subjects, therefore the legal framework in relation to minors in Germany is concentrated on education of these young people.

Illegal use of electricity deliberately distorting accounting or adjusting special devices to decrease the consumption of electricity is regulated by Paragraph 265.a of the Criminal Code of Germany. In the first part it is stated that anyone, who mechanically carries out secret actions or adjusts devices with intent to avoid payment for the service, is responsible with imprisonment for a term not exceeding one year or a fine. The second part of the abovementioned paragraph states that an attempt to carry out such actions is punishable under criminal law.

Having studied case-law of Germany, the author has found that, for example, on December 7, 2012, the court of Germany sentenced 50593 EUR, 86 compensation in the case No. Az. 19 U 69/11 from the person for unlawful use of electricity for 3 years. The person has illegally manipulated with the electricity meter to conceal growing of marihuana. The perpetrator was renting a flat since July 15, 2007 and was involved in growing of marihuana; the police, in turn, revealed the illegal production on August 15, 2009. The compensation was calculated for that period; however, the perpetrator tried to challenge the claim, indicating that representatives of the power supply company tested the commercial accounting in January 2008 and failed to established marihuana plantation. The court stated that the fact of testing commercial accounting does not indicate that a person is not involved in growing marihuana; it was proved by photos and witnesses’ testimonies.

It should be noted that there are similar cases of illegal use of electricity in Latvia; however, instead of growing marihuana production of moonshine has been organized. For example, in the personal experience of the author, possible perpetrators tried to maintain that during the testing of commercial accounting illegal actions were not established, not taking into account that testing of commercial accounting readings and testing of commercial accounting meters is not the same.

Justice of the recovered compensation from the perpetrator is explained in the court judgment No. Az. VI ZR 186/91 of January 14, 1992. It is stated in the judgment that compensation is calculated according to the regulations of Paragraph 18 of the Civil Code of Germany (Bürgerliches Gesetzbuch, BGB) on unjust enrichment, established case-law and Paragraph 9 of the Federal Regulations on Electricity Tariffs (Bundestarifordnung Elektrizität (BTOElt)) on electrical load of objects. Compensation is calculated according to cross section of inlet protection device or conductor, by with connection is installed, set up at the electric installation entry. In accordance with the general regulations in Germany, calculation period of compensation for damage for users’ supplies and back-up power supply from low voltage networks is limited with three years of limitation period.

The author has determined that in Germany there are relatively spread such cases when persons use unauthorized connections to the sources in common areas. On June 3, 1996 the court with its judgment in the case No. B 24/96 punished a person according to Paragraph 248.c of the Criminal Code by a fine for unauthorized con-
nection to lighting in common area while renting a flat.

It is positive that in Germany the landlord has the right to unilaterally terminate rental relationships with the tenant if the latter is illegally using electricity. It was recognized by the court judgment in case No. AG-Wedding 11-C-10314 of August 21, 2016.

Applying Paragraph 248.c of the Criminal Code of Germany in case-law, in most of the cases the perpetrator is punished by a fine and a record in the register of infringements (Bundeszentralregister) is additionally applied for perpetrators.

On the basis of Paragraph 242 of the Criminal Code of Germany, a theft up to 100 EUR is to be considered a minor theft; however, in case-law of Germany there are cases where the amount of electricity heft is just 1,8 euro cents. Thus, for example, on September 2, 2010 the court of Germany heard the case LG Hamm Sa 260/10 concerning the fact that an employee charged his electric motorised scooter at the workplace. Damages, which were caused by this electricity theft, constituted 1,8 euro cents. The court declared that employee’s dismissal in this case was invalid.

In a similar situation an employee was dismissed for electricity theft for charging his mobile phone at the workplace. The value of the stolen electricity was just 0,014 euro cents. After long discussions and arguments between the parties, the employee was reinstated.

In general, it can be concluded that Germany is the first country which defined electricity as property and determined criminal liability for electricity theft as an act giving rise to criminal proceedings. It is likely that experience and practice in combating electricity thefts of Germany as a country with Romano-Germanic legal system is useful for the other European countries, including Latvia.

4. Legal framework for unlawful use of electricity in the Republic of Poland

In accordance with the legal framework of Poland, civil, administrative and criminal liability can be distinguished for illegal use of electricity. Criminal liability is the most common, as it includes illegal activity against continuous electricity supply in a form of interference, by stealing or destroying energy infrastructure.

Polish society believed that more serious penalties would improve the criminogenic situation in the country, therefore Poland’s government adopted amendments to the Criminal Code of Poland (Kodeks karny) in 2001 and thereby the Criminal Code of Poland became the most severe in the whole Europe, in the interview to Polish public television first channel said the representative of Polish People’s Party Alexander Bentkovsky.

Electricity theft is established in Section XXXV of the Criminal Code of Poland (Kodeks karny) as crime against property. In accordance with the first part of Article 278, a theft of another person’s movable property is punished by imprisonment for a term from 3 months to 5 years.

In Poland, similarly as in Germany, the legislator has not given for the term “theft” (of electricity) other meaning than the term “appropriation”; both these terms are equivalent (Sokolowski Maciej M 2016).

In the judgment of the Supreme Court of Poland in criminal case No. IV KK 73/10 of September 1, 2010, it is stated that terms „theft” and „illegal use of electricity” can be interpreted as the same action.

Electricity theft is characterized by illegality. In the case of theft electricity is used without compensation. The objective side of electricity theft is expressed as unlawful use of electricity to gain own benefit.

A precise estimation of the amount of damage is problematic and in this context there is no common practice in Poland’s case-law. At the moment there are no effective tools to determine how long a person has illegally used
electricity and at what amounts, therefore also what is a precise amount of damage (Żurawik 2016).

This opinion is substantiated by the Appellate Court of Krakow on June 20, 2000, which stated that a special function of judges is to estimate the level of social damage within the framework of crime, to determine legal qualification and to apply appropriate penalty. Estimation cannot be carried out on general conditions and assumptions, therefore appropriate and special criteria should be established. The lack of convincing conclusions in this case can cause legal defects in determination of the perpetrator, and thereby setting aside the judgment of the court of first instance.

In turn, in the judgment of the Supreme Court of Poland in the criminal case No. III CZP 107-09 of December 10, 2009, despite the arguments of cassation appellants that they have not actually used electricity, it was determined that the calculation of electricity theft amount for a term from November 24, 2003 till February 7, 2006 meets the requirements of Article 57 of Polish Energy Law (Pravo energetyczne). In accordance with this legal provision, if a power supply company detects illegal use of electricity, it has the right to calculate the amount of damage according to general principles. Calculation period is identical to Germany – up to three years since the moment the fact was established.

Estimation and determination of damages in connection with illegal use of electricity is very important from the perspective of proof. The author has established that Polish legal scholars had a lot of discussions at the conferences concerning the abovementioned problems and several solutions were proposed, for example, to carry out calculation of damages taking into account the existing tariffs, cross section and carrying capacity of the illegally connected wire, object’s maximal load, as well as the existing case-law.

On the basis of article 10 of the Criminal Code of Poland, the subject of electricity theft is any natural person of sound mind which until the day of committing a criminal offence has reached seventeen years of age.

Article 39 (5) of the Criminal Code of Poland provides for a duty to compensate for damage which is one of the possible penalties. This duty concerns both damages (damnum emergens) and the profit lost (lucrum cessans) caused to the victim. Civil claim for compensation for damage against the offender is a separate issue. A rule that a person, who is guilty for causing damages to another person, is obliged to compensate these damages (Article 415 of the Civil Code) is a general rule.

Article 415 (6) of the Criminal Code of Poland provides that if the respondent is sentenced or legal proceedings are conditionally terminated in the cases provide by the law, the court shall decide on additional payment or impose obligation to compensate for damages. Article 415 (5) assigns even more opportunities to the court: if the respondent is sentenced or legal proceedings are conditionally terminated, the court may decide also ex officio on compensation for damages to the victim. As it can be seen, the aim of the legislator in Poland is to settle the conflicts which aroused as a result of crime. If the victim and the offender come to reconciliation or the damages are compensated, or the victim and the offender agrees upon the way of compensation, the court may decide on extraordinary mitigation of punishment. Even if the court refuses to give judgment, it can issue a criminal order for compensation, if thus the aim can be achieved.

In accordance with Article 12 of the Code of Criminal Procedure of Poland claims of a criminal offence can be recovered either in civil proceedings, or in criminal proceedings in cases provided for in the law (i.e. the Code of Criminal Procedure). Unilateral process, which is equivalent to the French “partie civile” process, is an instrument of criminal proceedings and acts in accordance with the Code of Criminal Procedure, its goal is to decide on the civil claims of the civil party against the respondent. Submission of a civil claim in criminal proceedings, in contrary to the Civil Procedure Law of Latvia, causes a pending lawsuit situation (lis pendens) and is a condition that does not allow civil procedure. And vice versa, pending lawsuit in civil court constitutes an obstacle to civil claim in criminal proceedings, therefore the matter will not be heard or will be dismissed. The same, judgment of the court on victim’s claims in criminal proceedings causes res judicata situation, which means that the matter cannot be raised again and is a condition that denies reconsideration of a matter in civil proceedings. However, if the imposed compensation for damage does not cover all damages or recompense the
offence, the victim can claim additional compensation for damage in civil proceedings (Article 415 of the Code of Criminal Procedure), which is permitted in principle also by the legal framework in Latvia.

Having analyzed the judgments on the cases and methods of illegal use of electricity, available at Poland’s Court portal, the author has found similar cases to previously described situations in Germany.

Thus, for example, with Wroclaw Department of Criminal District Court judgment in the criminal case No. II AKa 99/16 of May 19, 2016 it was established that perpetrators prepared for sale a remarkable amount of drugs – marihuana and amphetamine – consuming electricity without commercial accounting and causing damage to the power supply company at the amount of 522,21 EUR.

In turn, with Czestochowa Department of Criminal District Court judgment in the criminal case No. VII Ka 293/16 of May 13, 2016 it was established that the perpetrator illegally connected to the staircase lighting in a multihousehold building. Similar situation was noted in Poznan Department of Criminal District Court judgment in the criminal case No. XVII Ka 704/16 of 8 September 2016.

There are the following methods of illegal use of electricity in Poland:
– unauthorized connections to electric lines to use electricity without commercial accounting meter;
– hidden cable connections to the object’s electrical installations without commercial accounting meter;
– creating a connection to incoming phase wire of electricity meter for a terminal before meter to a post measuring fuse;
– making a phase wire bridge under meter’s circuit terminal cap;
– adjusting special devices which allows illegal use of electricity.

Hidden connections which are made during construction of objects are problematic. It is very difficult to detect them, as it requires special knowledge and equipment. When they are detected, perpetrators try to avoid responsibility stating that they did not know about the existence of these connections as they inherited the object or the object came into their possession as a result of expropriation. In this matter the author supports case-law of Latvia, namely, that it does not matter, who installed the illegal connection, as the fact that such connection existed is important and the fact that the user of the object gained profit from this illegal connection. Thus, there are no problems to recover damages in civil proceedings.

Having analyzed the judgments of Poland’s courts on illegal use of electricity, the author found that the amount of caused damages ranges from 22,73 EUR to 5324,80 EUR . In case-law applying Article 278 of the Criminal Code of Poland the perpetrator in most of the cases is obliged to compensate for damages and pay a fine. The author considers this sanction as very effective and believes that similar regulation is necessary in Latvia, as well. In Poland there are also cases when imprisonment for a term up to 6 months with an obligation to carry out work for social objectives for 20 hours per months and fines are imposed.

At the same time, there are rules of law in the Criminal Code of Poland that concern not only damages which are caused to energy companies as a result of illegal action. Article 254 of the Criminal Code is one of them, which states that “a person who damages, destroys, causes damages or makes an element of electric energy networks unusable shall be punished by imprisonment for a term from 6 months to 8 years”, as well as the first part of Article 165 (3) which states that “a person who poses threat to human’s life and health or causes a large scale harm to property, shall be punished by imprisonment for a term from 6 months to 8 years”.

Regulations of the legal system of Poland in the field of electricity supply protection indicate increasing interest and necessity to regulate the energy sector in Poland. Overall, it can be concluded that electricity thefts are widespread in Poland and Poland’s legislators pay serious attention to protection of energy sector.
5. Legal framework for unlawful use of electricity in the Republic of Lithuania

The development of criminal law and law of criminal procedure in Lithuania in the 20th century, the same as in Latvia, was influenced by legislative acts adopted in Russia and later during Soviet times. Russian Penal Law of 1903 was implemented in Lithuania, as in Latvia, in 1918, which remained in force after the declaration of independence of Lithuania. In 1940 the Criminal Code of RSFSR was implemented in the territory of Lithuania. In turn, the Criminal Code of Lithuanian SSR of 1961 did not differ substantially from the criminal codes of other socialist republics. This Criminal Code, which was amended several times, remained in force until the end of 2002. The Criminal Code of Lithuania was approved by a special law of September 26, 2000, and came into force on January 1, 2003.

The Criminal Code of Lithuania (Baudžiamasis kodeksas), identically to the Criminal Law of Latvia, consists of General and Special part. Section XXVIII of the Special part provides criminal offences against property. Illegal use of energy, including electricity and communication services, is found in Article 179 of the Criminal Code of Lithuania. According the first part of Article 179 of the Criminal Code, a person, who connects to electricity or communication networks or storages without authorization, counterfeiting commercial accounting, or with other methods unlawfully uses energy, telecommunication or other objects of economic value, causing material damage to another person, shall be punished by forced labour or a fine, or restriction of liberty, or imprisonment for a term not exceeding two years.

The author has found that in contrary to Article 182 of the Criminal Law of Latvia, the first part of Article 179 of the Criminal Code of Lithuania does not provide causing of serious material damage for unauthorized consumption of electricity, which, according to the author’s opinion, is a very effective punishment and it doubtlessly disciplines Lithuanian energy consumers.

The object of the offence is another person’s property interests. The objective side of the offence is expressed as unlawful use of energy resources and telecommunications. Unlawful use means that a person, who is using energy resources or telecommunications, does it without payment for the accounted amount, for example, by illegal connection to energy resources or distorting the readings of commercial accounting meters.

Energy resources in Lithuania, as well as in Latvia, are not considered as property in a material sense, therefore energy resources are not considered as a subject of property theft in the Criminal Code of Lithuania; however, illegal use of these resources is an offense with an avaricious intent which causes actual material damage to its owner. In accordance with Article 13 of the Criminal Code of Lithuania, the subject of criminal offence is any natural person of sound mind which until the day of committing a criminal offence has reached sixteen years of age. The perpetrator, being aware of unlawfulness of his or her actions, intents to cause damage to the owner of energy and wishes to gain profit from the use of these resources, therefore the actions are carried out with deliberate intent.

In contrary to Latvia, where there are still arguments about the criminal liability of a legal person, the legislator of Lithuania has solved the problem providing opportunity in the Criminal Code to impose criminal penalty not only on natural persons, but also organizations. Legal persons can be held criminally liable only in cases provided for in the Special part of the Criminal Code of Lithuania; moreover, if it is established that a natural person has acted in a legal person’s interests or for its benefit. A legal person can also be held criminally liable if its employee or authorized person has committed an offence in a legal person’s interests or for its benefit without being sufficiently controlled or supervised by the legal person. The Criminal Code emphasizes that criminal liability of a legal person does not eliminate the liability of a natural person for breach of prohibitions stated in the criminal law (Judins 2003).

The energy supply entrepreneur, whom damage has been caused to, has the right to raise a civil claim against the suspected person or the respondent during criminal proceedings. Such claims will be considered by the Lithuanian court together with the criminal case. However, if a person has not raised a civil claim during crimi-
nal proceedings, it has the right to raise a claim according to civil procedure. Written evidence shall be submitted justifying the amount of damage caused (bills for illegal use verifying expenditures; documents approving the established fact, etc.). Claims for damages caused by a criminal offence should be submitted within three years starting from the day when the crime was committed, except those cases when the deadline is expired due to specific reasons.

Having analyzed the judgments on application of Article 179 of the Criminal Code of Lithuania, available at Lithuanian Court portal, the author has found similar cases to Latvia.

On October 28, 2012, Kupishkio district Panevezys Department of Lithuanian Police initiated investigation in accordance with the first part of Article 179 of the Criminal Code on illegal use of electricity in gardening cooperative partnership “Šepetos Žalgiris”. During investigation it was found that casing of a commercial accounting meter was broken which allowed distortion of accounting readings and illegal use of electricity in the amount of 2199.88 EUR. The members of gardening cooperative partnership used electricity, but paid for it less. Since a relatively large amount was stolen within one month, someone was able to “save” hundreds of euro; however, the perpetrator has not been determined, therefore the criminal case was dismissed, but the victim raised a claim for civil proceedings. Consequently, in the judgment of Kupishkio District Court in a civil case No. Byla 2-478-783/2014 it was concluded that it does not matter who created illegal connection, as the fact that gardening cooperative partnership gained benefit from it was important, thus the victim’s claim was satisfied.

As in Latvia, cases when a person illegally uses electricity sever times in a row are widespread in Lithuania. Thus, for example, in accordance with the judgment in the criminal case No. Byla 1-150-799/2012 it was established that a person V., who on November 2, 2005 and August 9, 2006 was already punished according to the first part of Article 179 of the Criminal Code of Lithuania, within the period from June 13, 2011 till June 13, 2012 for more than a year once again unlawfully used electricity by unauthorized connection to the networks of energy supply company AB “Lesto” causing damages of 1145.54 EUR. AB “Lesto” established illegal connections on May 29, 2012, June 5, 2012 and June 13, 2012. The court found the person V. guilty according to the first part of Article 179 of the Criminal Code and imposed imprisonment for 10 (ten) months, on the basis of paragraph 1 and 7 of the second part of Article 75 of the Criminal Code, imposing conviction on probation, ban to leave the place of residence for a year without a permit from supervisory authority and to compensate for damage to the victim.

According to the second part of Article 179 of the Criminal Code of Lithuania, for same actions, if those have caused serious harm, a person shall be punished by imprisonment for a term not exceeding six years. This rule of law, similarly to Article 182 of the Criminal Law of Latvia, is not effective, because only in rare cases both in Lithuania and in Latvia illegal use of electricity causes serious harm, therefore case-law in this aspect is very rare.

In turn, the third part of Article 179 of the Criminal Code of Lithuania provides that for the same actions, if those have caused minor harm, a person is punished by forced labour or a fine, or imprisonment or arrest is imposed. Case-law of Lithuania in the field of illegal use of electricity is more connected to the application of this rule of law.

On December 13, 2011 Kedainiai District Court, hearing the criminal case No. Byla 1-331-736/2011, established that perpetrator R. J. connected his residential object, which was previously disconnected due to debt, to the neighbour’s apartment and used electricity without authorization, thus causing damage to the neighbour at the amount of 107, 12 EUR. Taking into account that small scale damages were caused, the offence was qualified according to the third part of Article 179 of the Criminal Code and the perpetrator was punished by restriction of liberty on probation for a five months term with obligation to compensate for damages and work or register at employment agency.

In contrary to Lithuania, the Criminal Law of Latvia provides no punishment that would impose restriction of liberty. Some analogy with conviction on probation can be found, but in Latvia it is not considered as a type of penalty. Restriction of liberty in Lithuania can be imposed for a term from three months to two years. A person
imposed to restriction of liberty is under a ban to change the place of residence without the agreement of supervisory authority, is a subject of obligation imposed by the judgment and must observe the imposed prohibitions, as well as report on fulfilment of obligations according to procedure provided for (Judins 2003).

In Latvia there are also cases when persons have connected to electricity networks of other persons’ property. They are using electricity, but the owner of the property pays for it. The author believes that residents must install electrical power networks in such a way that would prevent the cases of unauthorized connections. However, the most widespread cases of illegal use of electricity both in Latvia and Lithuania are connections to electrical power networks of energy supply enterprises.

On January 6, 2010, Ignalina District Court heard the criminal case No. Byla 1-6-242/2010 concerning unauthorized connection of the respondent Y to the electrical power network of joint stock company RST, thus illegally using electricity from December 6, 2008 till July 17, 2009 and causing small scale damages to the victim – 77,14 EUR. The actions of the respondent were qualified according to the third part of Article 179 of the Criminal Code, however, taking into account the fact that the respondent has compensated for damages and the parties have achieved reconciliation, the court on the basis of Article 38 of the Criminal Code decided to release the respondent from criminal liability.

The author, taking into account the fact that in Lithuania, in contrary to Latvia, criminal liability is provided for illegal use of electricity at large scale, assumes that similar legal framework is necessary also in Latvia. Article 55 of the Criminal Code of Lithuania, which states that, imposing penalty on a person who has committed less serious crime for the first time, the court should choose a penalty which is not connected to restriction of liberty.

In turn, the specialists of Latvian energy companies should take into account the experience of safety services of Lithuanian energy companies, carrying out constant inspections in those objects where electricity supply is disconnected. That leads to a positive result as such preventive inspections can considerably eliminate illegal connections. Thus, for example, on January 25, 2010 an expert of the department of safety and prevention of the joint stock company RST during inspection established that a person V. installed an unauthorized connection to electrical power network with 4mm copper wire. On August 3, 2010 Ignalina District Court heard the criminal case No. Byla 1-6-242/2010 concerning unauthorized connection of the respondent Y to the electrical power network of the joint stock company RST, thus illegally using electricity from January 25, 2009 till January 25, 2010 and causing small scale damages to the victim – 93,33 EUR. The actions of the respondent were qualified according to the third part of Article 179 of the Criminal Code and he was punished by forced labour for a four months term with obligation to work on unpaid public works for thirty hours per month. A civil claim of the victim was satisfied by the court’s judgment. Examination of the legal framework, case-law and the methods of illegal use of electricity in Lithuania leads to the conclusion that they are almost similar with a difference that in Lithuania criminal liability is provided for illegal use of electricity at a small scale. In general, it can be concluded that such approach is safe and effective; therefore, the author assumes that a similar legal framework should be implemented in Latvia. In reality, most of the cases of illegal use of electricity occur at a small scale and establishment of criminal liability will motivate the society not to steal electricity. The rule of law as a regulation does not order or prohibit. It just indicates the “intended” direction of action and the “idea” of the law (Esser 1970).

In the author’s opinion, the establishment of criminal liability is not and cannot be an aim in itself, but it should include information on the type of action and create motivation for a person’s action, providing certain responsibility. In the author’s work experience, in most situations where criminal liability for illegal use of electricity was provided, the perpetrators have regretted their actions, achieved reconciliation, compensated for damage and are not involved in illegal activities any more.
Conclusions

Having analysed the experience of other countries from Western Europe (Germany) to Eastern Europe (Poland, Lithuania, Russia) in comparison with Latvia in combating illegal use of electricity, it was found that there are different number of these cases, different legal framework, diversity of opinions, understanding and solutions:

Having analysed court rulings, it was found that in Germany illegal use of electricity is not widespread, whereas in the East (Poland, Lithuania, Latvia, Russia) it is a serious problem and there is a tendency of increase in the overall share of these cases. Having analysed the experience of Germany and taking into account the fact that Germany has influenced Latvia to a large extent in the field of the development of legal system, it should be recognized that experience of Germany can help to understand more quickly, precisely and effectively the desired tendencies in combating illegal use of electricity in Latvia, including the issues on considering electricity as a property in a material sense to enable qualifying electricity as a subject of property theft.

In the foreign criminal law theory there are different opinions on subjects of illegal use of electricity and the age of criminal liability; thus, in Germany criminal liability is imposed at the age of 14, in Lithuania, Latvia and Russia at the age of 16, in Poland at the age of 17. In contrary to Latvia, where admission of guilt dominates at criminal proceedings, in Germany, Poland and Lithuania there are possibilities to impose criminal penalties not only on natural persons, but also on legal persons.

The authors welcome the practice in Lithuania when imposing punishment on a person, who has committed a small crime for the first time, the court should impose punishment that is not connected with the restriction of liberty. Thus, correction can be achieved with less repressive, but effective means.

The authors believe that the experience of Lithuania in establishing criminal liability for illegal use of electricity at a small scale would be important and effective for Latvia.

The authors consider the fines imposed in Germany and a record in the register of infringements, as well as the obligation to compensate for damages established in Poland, to be effective penalties. These can settle the conflict aroused in the result of a crime. The precise estimation of compensation causes problems in all the countries, the laws of physics are applied to calculate the amount of compensation, defining the period of illegal use for a term up to three years since the moment the fact was established; however, in practice calculation is applied for a term not exceeding one year. The authors believe that the disputes on the amount of compensation should be settled in civil proceedings, and the authors support the experience of Lithuania, which allow submission of a civil claim during criminal proceedings that facilitates quick and just handling of the case.

In Latvian case-law there is no uniform understanding on the notion of damage caused by illegal use of electricity, as sometimes it is interpreted as a debt, and sometimes as losses. The authors support the case-law in Germany and Poland, where these are considered as losses, and suggest that in Latvia the damage caused should be interpreted as losses as well.

Summarizing the specifics of the cases in the above-mentioned countries, it can be concluded that the methods of illegal use of electricity are similar, those differ depending on place, time and conditions. It was found that the cases when persons engage in illegal use of electricity several times in a row are widespread in Lithuania and Latvia. The authors recommend paying attention to establishing and recording of facts, it should be done professionally in order to fix and preserve evidences, which will be crucial for hearing the case. Therefore, the authors support the practice of Lithuania where the specialists of energy supply companies carry out inspections of objects with the assistance of security services with professional experience in detection and recording of illegal cases in order to prevent the possibility of challenging or putting into question the methods used for unlawful connection. The authors believe that it is important to use verified measuring apparatus and instruments to detect and determine these cases.

In order to combat illegal use of electricity and to ensure economic stability and observance of law, it is important for Latvia to use the research findings concerning the experience of the referred countries.
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Pitūjums. Krimināltiesības – attīstības tendences Eiropas un nacionalās tiesībās, attiecības starp 1 un III pilāru, ieviešanas metožu labākā prakse (Research. Criminal Law – development trends in European and national law, the relationship between I and III pillar,


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THE SAFETY RISKS RELATED TO BANK CARDS AND CYBER ATTACKS

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Abstract. In accordance with the rise and rapid growth in e-commerce in the past few decades, the use of payment cards for online purchases has significantly increased in the payment cards market. This situation has led to an explosion in payment card fraud and it is costing billions of euros and dollars in losses in the card payment industry. The understanding of security has therefore undergone a significant development. Due to the inaccurate evaluation of their personal security status, people tend to underestimate the safety features related to the protection of their financial data on the internet. This claim is supported by the high level of interest that cyber attackers show in persons operating in the public and economic spheres. The collection and data analysis carried out suggests that the target sample group has not had experience with cyber-attacks, predominantly because this group was made up of ‘ordinary’ people, presumably outside of the cyber attackers’ sphere of interest. It is therefore important to further investigate the opinion and consumer approach to security and payment card fraud. As a result of rising losses, financial institutions and card issuers are constantly searching for new technologies and innovations in payment card fraud detection and prevention. This article provides several views on personal safety and quality of security to payment cards and cyber-attacks. The data collection and analysis was carried out in Slovakia via electronic sample surveys. With sample surveys the data is collected from a base sample unit, which in this case consisted of a sample of residents of the Slovak Republic. The research sample for this investigation consisted of 287 respondents, out of which there were 164 men (57.14%) and 123 women (42.86%). For the purposes of the analysis, the respondents were divided into categories, based on their age, level of education and occupation. The study results can help the issuers of payment cards and banks as well as clients using payment cards, especially in order to improve the prevention against fraud and the unauthorised use of payment cards.

Key words: cyber-attacks, security, safety risk, customer, bank payment cards, payment card fraud, card payment industry


JEL Classifications: D18, F 52, G21, K 24

1. Introduction

Despite the payment card industry’s significant improvement in reducing the rate of fraud, absolute losses from payment card fraud continue to grow. All participants involved in the payment system are affected. In addition to the direct financial losses incurred from fraud, there are growing concerns that increased public attention to data breaches and payment card fraud may lead to a general undermining of consumer confidence in electronic payments.
Importantly, the very nature of fraud risk is changing (Jankalová, Jankal, R. 2017; Štitilis et al. 2016; Allabouche et al. 2016; Tumalavičius et al 2017; Lavrinenko et al. 2016; Lavrinenko et al.2017; Kabát et al. 2017; Sulphey, Alkahtani 2017). As consumers have become more comfortable using many payment options across a growing range of channels, the landscape has become more complex, leading to new vulnerabilities and risks for fraud. The perpetrators of payment fraud have changed as well. Today, professional, well-funded criminal groups, operating domestically and internationally, are using the latest technologies to attack global and regional payment networks (Čirjevskis 2016; Apsītis et al. 2016; Tumalavičius et al. 2016; Štitilis and Kriviņš 2015; Kriviņš 2015; Teletov et al. 2017; Teivāns-Treinovskis, Amosova 2016; Baronienė, Žirgutis 2017; Limba et al. 2017).

The banking area receives strategically timely information about fraudulent activities. Many of the banks and very large databases contain valuable business information that can be extracted from these data stores (Ogwueleka 2008; Munteanu, Tamošiūnienė 2015; Kaźmierczyk, Aptacy 2016; Jurevičienė, Skvarciany 2016). Valid payment card fraud detection in two classes (real) process of identifying those transactions that are fraudulent and fraudulent transactions (Maes et al. 2002). Bhatla et al. (2003) argues that the payment card fraud can generally be classified into three categories:

- traditional card fraud (stolen cards, card application, acquisition, imitation and fake accounts),
- business related fraud (dealer collusion and triangulation)
- internet related fraud (site cloning, generating credit cards and false merchant sites).

The transaction with payment cards may take place within minutes, but the side effects of fraud over phone lines or via electronic communication is able to continue for months, sometimes years in the form of long and costly legal proceedings. When electronic fraud strikes, the losses are usually distinguished, while the client’s reaction ranges from strong anger to distrust toward the bank which “has allowed” the fraud to happen. Trustworthiness is the essential determinant of efficient and stable banking.

Nowadays, the secure development has become a real and urgent matter in many countries around the world (Štitilis, Klišauskas 2015; Kriviņš 2015). Regulations and card network operating rules regarding payment card fraud place a substantial burden on the card-issuing community. Therefore, card issuers are highly motivated to identify areas of vulnerability in the system and to champion tools for preventing fraud. Issuers also have to balance the management of fraud risk with its POS impact on their cardholders.

Personal economic and financial security can be mostly viewed as a matter of personal decision and common sense (Kalyugina at al. 2015). Currently, it is the phenomenon of globalization and diversification, which is becoming dominant, and that to such extent that the majority of economic subjects take action in accordance with what is called “rational inattention” (see Sims 2006). At the same time, personal debt and economic freedom have become the key elements of every society (Rakauskienė 2014; Šileika, Bekerytė 2013; Mura, Sleziak 2015; Rajnoha et al. 2016 a; Rajnoha et al. 2016c).

Security is connected to a large number of bank activities and is a significant issue in commercial bank management. Ensuring the security of banking is determined by a range of factors. Commercial bank security is a complex system including many activities, e.g. capital management in the context of credit, market and operational risks (i.e. capital adequacy management), etc. The security process is focused on operational risk defined as a risk of loss resulting from internal processes or human capital failure or from external conditions (Peker et al. 2014).

Physical security is connected to the protection of cash in bank branches and ATMs. The system security includes all internal and external processes carried out by informational system. In this context, the security of individual customers’ deposits and their payments is crucial. The security of customers’ is the key factor of success for banks. The mentioned factor heavily influences acquisition, retention or loss of customers. For that reason, it is decisive for a commercial bank to undertake such measures to ensure a proper and efficient protection of customers (Korauš et al. 2016).
The present situation demands the commercial banks to pay extraordinary attention to payment cards security. The compliance with consumers’ needs and requirements (Bilan, 2013), bank customers’ satisfaction and comprehensive customer care are nowadays at the centre of attention for researchers and bankers. It is for this reason that these respective factors represent an important marketing instrument for many companies, notably those working at highly competitive markets. (Belás and Demjan, 2014) Researchers are trying to find the main determinants for bank customer satisfaction and examine these issues from various perspectives (Doležal et al., 2015; Belás et al., 2015; Chochoľáková et al., 2015; Paulík et al., 2015; Štilinis et al 2015; Štilinis et al 2016).

A key to the success of the modern payment card industry has been its ability to gain and then maintain consumer confidence in the safety and security of these payment systems. Networks, issuers, acquirers, and regulators have all played their respective roles in effectively managing payment fraud, thus greatly contributing to the rapid growth in consumer adoption of electronic payments. Nevertheless, the nature and scope of payment fraud in these environments is dynamic, and as such it require the ongoing development of new solutions, as well as greater collaboration across all links in the payments chain. Responsible managers will consider how changes in business models, behaviours, and fraud threats are creating new challenges in mitigating the related risks.

2. Theoretical Background

Credit card fraud continues to be a significant and dynamic risk to financial institutions as a result of both new threats and the increasing regulatory interest in fraud management programs. Emerging fraud threats and solutions required to mitigate them are increasingly technically complex. To secure and maintain customers’ trust, the financial institutions must prevent, detect and respond to fraud risk in an agile manner through fraud management technologies and predictive analytics. While the new US mandate of Europay, MasterCard and Visa (chip and PIN) technology will help decrease the risk of counterfeit transactions, financial institutions must remain vigilant, as fraudsters will certainly be crafting new modes of attack (Korauš et al. 2016).

The expansion of payment cards has significantly changed the manner we shop and businessmen sell goods and services. Currently, payment cards are vital in most advanced economies. Amromin and Chakravorti (2009) suggest that extensive usage of debit cards has caused lower demand for small-denomination banknotes and coins. This process was seen in thirteen advanced economies. Payment surveys done recently also indicate that consumers are using payment cards instead of checks.

Extensive usage and acceptance of payment cards leads to a growing number of consumers and at the same time merchants start to prefer payment cards to cash and checks.

In general, all payment tools possess special aspects such as cost, transaction speed, restraint, security, convenience, records keeping and acceptance (Hajduová, et al. 2014; Schuh and Stavins, 2011; Ching and Hayashi, 2006; Borzekowski et al., 2006; Ključnikov, et al. 2016; Virglerová, et al. 2016).

Schuh and Stavins (2011) define payment security as “security against permanent financial loss or wanted disclosure of personal information when a payment method has been stolen, misused, or accessed without the owner’s permission”. According to the research by Zinman (2008), the improved security was a significant proximate of recent growth of debit card users. The customers tend to choose transactions which are secure because in their eyes the payment security is of crucial importance.

A lot of cardholders prefer holding bank cards as a preventative measure against loss, robbery, theft, or counterfeit money. As opposed to the latter approach, there are others who are still fond of using cash instead of cards, as they are afraid of becoming exposed to the risks of fraudulent activities when the cards are lost or stolen. Most of the clients feel secure because they are always protected by liability agreements with card issuers and merchants when these problems occur. The concern of security was highlighted in the research by Schuh and
Stavins (2011) who presented their conclusion that people who consider the card payment method relatively more secure are more likely to adopt it and vice versa. Security is definitely important and necessary when it comes to understanding the consumer behaviour for using payment bank cards.

Since the internet environment is more sensitive to system attacks, the utilisation of these channels has underlined the essential role of bank security (Koskosas, 2011; Dhillon and Torkzadeh, 2006). Koskosas (2011) claimsthat customers can find huge advantage in electronic banking due to its simplicity and reduction of transaction costs, however it is necessary to respect the financial security.

The use of electronic banking is tightly associated with the customers’ perception of their security which has an impact on their behaviour and attitudes (Grabner-Krauter and Faullant, 2008). The recognised absence of security is defined as a potential loss caused by fraud or internet banking hacking (Lee, 2009) In this context, the security and privacy are considered to be two fundamental determinants of customer trust in electronic banking (Flavián and Guinalíu, 2006).

Security attributes of electronic banking and payment cards were examined by Hoffmann and Birnbrich (2012). Belás et al. (2016) argue “their research was focused on describing the conceptual and empirical relations among bank activities in the field of protection against third party attacks, customer relationship management quality and customer loyalty”. The authors declare that security is crucial and is becoming even more important in the current banking sector. The fraud prevention has become one of the priorities of banks, customers and even politicians as bank frauds harm both banks and customers. The results showed that there is a positive relation between trustworthiness of a bank, its skills in the field of fraud prevention and customer relationship management quality. After all, customer relationship management quality has a positive influence on customer loyalty. There is a difference between younger and older customers in their knowledge about security measures of banks focused on fraud prevention. At the same time, the positive impact of this awareness on the customer relations quality is less significant in the group of older clients. “The possible cause reason for this could be found in a higher level of scepticism of older clients regarding the efficiency of the above-mentioned measures. Fraud prevention is vital in customer relationship management quality for all customers regardless of their education and income levels” (Korauš et al. 2016).

3. Research objective, methodology and data

The basis for the research lies in the discussion of cyber fraud and stems from two Hypotheses.

**Hypothesis 1**: A significantly larger number of university-educated women compared to men under the age of 40 has no experience with hacking or bank fraud.

**Hypothesis 2**: A significantly larger number of high-school-educated men compared to women over the age of 40 has no experience with hacking or bank fraud.

Both hypotheses were confirmed.

Introduction:
- Blissful ignorance:
  - The psychological aspect of blissful ignorance- people do not perceive the threats of hacking based on their feeling of false security.
  - Due to the incorrect evaluation of their security, people underestimate safety guidelines connected to financial data protection on the internet.
- Safety features and the updating of security software’s
- The hackers’ point of view:
  - The feeling of false security most likely comes from the narrow focus of cyber crime on corporations or persons with a high public profile.
The examples and reasons behind cyber-attacks on corporations, state institutions and banks.

Results from target group data

Conclusions:
- It is clear from the data collection and analysis that the research group did not encounter cyber-attacks mainly due to the fact that it consisted of ‘ordinary’ people, presumably outside of the zone of interest of the hackers. This claim is supported by the fact that the hackers are predominantly interested in persons operating in the public economic life.

Data Collection

Data collection was conducted in Slovakia through an electronic questionnaire. The survey collected data from a specific part of the base sample group, consisting of the citizens of the Slovak republic. Data collected via surveys do not provide for a reliable data set for all markers, as these are not equally represented with the examined units. However, from a temporal perspective, surveys are very efficient, which can be seen as their greatest advantage. Surveys also facilitate the work with data collection and the processing of data which leads to an efficient use of financial costs. This kind of data collection allows for greater thoroughness of investigation as the smaller the target sample, the bigger the possibility of increasing the investigated content. The sample can be observed more intensively, whereby the amount of information obtained can be greater in volume and examined in greater detail. Surveys can also be used with the destructive character of an exhaustive statistical investigation, ie in cases when the examined unit is devalued by statistical investigation.

The target sample for this experiment consisted of 287 respondents, out of which 164 were men (57,14%) and 123 were women (42,86%). For the purposes of the investigation the respondents were stratified into separate categories by age, education and occupation. The age category saw the respondents separated into two groups, those over and under the age of 40. In the under 40 group there were 113 units (39,37%) and in the over 40 group contained 174 units (68,63%). The education category saw the statistical units divided into three groups. 152 respondents were university educated (52,64%), 120 were high-school educated (41,81%) and 15 reached basic, primary school education (5,22%). Such division roughly corresponds with the education demographic of the populace of the Slovak republic. From an occupational perspective, the respondents were divided into: students (64 - 22,30%), unemployed (64 - 22,30%), employed in state and public sectors (59 - 20,56%), employed in the private sector (64 - 22,30%) and retired (36 - 12,54%).

Graph 1, Graph 2: A graphic representation of the respondents in their respective categories, according to gender.
For the purposes of the research on the awareness of people about hacking attacks, a contingency table was created, collating the collected data. Table 1 collates the responses to the question: *Do you have any experience with hacking attacks or bank fraud?*
Table 1: A contingency table of responses in the observed categories

<table>
<thead>
<tr>
<th>Sex</th>
<th>Age</th>
<th>Education</th>
<th>no</th>
<th>yes</th>
<th>Row Totals</th>
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<td>-40</td>
<td>Higher</td>
<td>23</td>
<td>10</td>
<td>33</td>
</tr>
<tr>
<td>Male</td>
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<td>Secondary</td>
<td>16</td>
<td>17</td>
<td>33</td>
</tr>
<tr>
<td>Male</td>
<td>-40</td>
<td>Basic</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
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<td></td>
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<td>28</td>
<td>67</td>
</tr>
<tr>
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<td>Higher</td>
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<td>25</td>
<td>46</td>
</tr>
<tr>
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<td>Secondary</td>
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<td>30</td>
<td>40</td>
</tr>
<tr>
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<td>Basic</td>
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<td>5</td>
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</tr>
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</tr>
<tr>
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<td>Basic</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
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<td></td>
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<td>26</td>
<td>46</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>Higher</td>
<td>21</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>Secondary</td>
<td>17</td>
<td>15</td>
<td>32</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>Basic</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>38</td>
<td>39</td>
<td>77</td>
</tr>
<tr>
<td>Columns Total</td>
<td></td>
<td></td>
<td>134</td>
<td>153</td>
<td>287</td>
</tr>
</tbody>
</table>

**Source:** collected data

Using the contingency table not only allows for the analysis of individual responses, but also creates an idea of the feeling of safety as an umbrella concept, based on personal experience of respondents with hacking attacks. The contingency table also serves as a source of entry data for the Pearson chi-square test, in order to confirm or disprove the hypotheses, which are devised to discern the differences between the feelings of safety of individual genders.

**Methodology**

Pearson’s chi-squared test was used to investigate the target group’s data. This test appears feasible for the confirmation or the disproval of the stipulated hypotheses. The Pearson chi-squared test is a fundamental, most frequently-used test of independence in contingency tables. This statistical test tests the null hypothesis, which states that there exists no difference between the expected and theoretical distribution. The arbitrary units $X$ and $Y$ are therefore statistically independent. The probability that a certain variable of the unit $X$ occurs does not in any way affect that a certain variable of the unit $Y$ occurs as well. This fact is expressed through probability, i.e., through the hypothesis of independence and it stipulates that:

$$p_{y} = P(X = i \land Y = j) = P(X = i)P(Y = j) = p_i p_j, \quad i = 1, \ldots, r; \quad j = 1, \ldots, c \quad (1)$$

Based on the results of the chi-square test we do not reject the null hypothesis, as long as the differences between the experimental and the expected values occurred as a result of a coincidence and, conversely, we reject the null hypothesis and accept the alternate hypothesis if the differences between expected values are statistically significant. If we mark the number of subjects where a certain observed situation occurred $n_{y}$ while the value of $X$ equals the value of $i$, and the value of $Y$ equals the value of $j$, we can then define the marginal frequency belonging to the $i$ variable of $X$, or the $j$ variable of $Y$:

$$n_i = \sum_{j-1}^{c} n_{y} \quad (2)$$
If we do not reject the null hypothesis we can expect the frequency of individual combinations, when \( X=i \) and \( Y=j \) which we mark by \( e_{ij} \) that we can calculate as the following:

\[
e_{ij} = np_{ij} = np_i p_j = \frac{n_i n_j}{n}
\]

Pearson confirmed that:

\[
X^2 = \sum_{i=1}^{r} \sum_{j=1}^{c} \frac{(n_{ij} - e_{ij})^2}{e_{ij}}
\]

Once the null hypothesis of independence applies, it has a chi-squared division of probability with the parameters of \( (r-1)(c-1) \); therefore \( X^2 \sim X^2 (r-1)(c-1) \) applies. The null hypothesis of the independence of \( X \) and \( Y \) is disproved due to the significance of \( \alpha \), once the value of the tested statistic \( X^2 \) exceeds the 100 \((1-\alpha)\)% quantile of the division of \( X^2 \), i.e. when:

\[
X^2 \geq X^2 (r-1)(c-1)^{(1-\alpha)}.
\]

The assumptions of the Pearson chi-square test that must be verified before the test are the following:

- The individual observations in the contingency table are independent from each other, therefore each unit of the research process is included in the contingency table cell only once.
- At least 80% of the contingency table has an expected multiplicity of \( e_{ij} \) greater than 5 and all cells of the table have an expected frequency of \( e_{ij} \) greater than 2. This is tied to the asymptotic features of the \( X^2 \) statistic and is therefore as important an assumption as, for example, the assumption of the normal distribution of the observed values in the t-test group.

The results gained by observing the target group

It is clear from the contingency Table 1 that the majority of the respondents have encountered hacking attacks. This is confirmed by the fact that increasingly even persons supposedly outside of the hacker’s zone of interest are attacked, rather than just persons of a high public and social profile in the country. It is also clear from contingency Table 1 that a certain part of the populace has not yet encountered hacking attacks, which could potentially lead to a false sense of security with the given respondents.

Another factor that was investigated was the focus of the hacking attacks on the respective gender of persons. In order to find out whether there is a difference between the number of hacking attacks on men and women, the following hypotheses were devised:

**Hypothesis 1**: A significantly larger number of university-educated women compared to men under the age of 40 has no experience with hacking or bank fraud.

**Hypothesis 2**: A significantly larger number of high-school-educated men compared to women over the age of 40 has no experience with hacking or bank fraud.

The given hypotheses were verified using the Pearson chi-squared test with significance level \( \alpha = 0.05 \). The entry data used was obtained from the contingency Table 1, gained by a survey via electronic questionnaire in the Slovak Republic.

Based on the chi-square test conducted using the data from Table 1 (\( \chi^2 = 3.945357, p = 0.04700 \)), with \( \alpha = 0.05 \),
a significant difference between the answers of university-educated men and women under the age of 40 was shown. We can therefore state that a significantly higher number of university-educated women compared to men under the age of 40 has no experience with hacking or bank fraud.

The same manner of testing was applied to the high-school-educated group. Based on the Pearson chi-square test ($\chi^2 = 6.000000, p = 0.01431$) conducted using the data from Table 1 with $\alpha = 0.05$, we can equally accept Hypothesis 2. The findings indicate that similarly, a significantly larger number of high-school-educated men compared to women over the age of 40 has no experience with hacking attacks or bank fraud.

Conclusions

Criminal activity associated with abusing the banking payment cards is variable. It is determined mostly by technical opportunity for advancement of offenders, inattention from the side of payment card holders and technological progress of society. Financial losses caused by misusing the banking payment cards are very high world-wide (Rajnoha, et al. 2016 b). For that reason, all preventative technical and organisational measures focused against this form of criminal acts are important.

Compared to any other time in its history, the payment card industry faces a rapidly increasing variety of security challenges as the transaction environment grows in size and complexity.

On a global level, fraud continues to migrate from more secure to less secure regions and channels. This obvious shift is accelerated by an increasingly adept and organized criminal community that seeks to exploit security vulnerabilities and commit fraud. Criminals are targeting not only the weakly monitored, stand-alone, point-of-interaction devices, but are also launching sophisticated attacks on the private networks of well-known entities: such as major data processors and top-tier merchants. All of these factors can lead to fraud attacks.

Credit card fraud has been committed since credit cards were first introduced. Modern technology has increased the ways in which it can be committed. Criminals see the card industry as a lucrative business that can be exploited by the use of technology.

Credit card frauds can take several forms, ranging from petty theft, where the perpetrators tend to use the credit card for smaller purchases, to greater and more sophisticated attacks, where the goal of the criminal is to alter the safety features of the bank card itself (Snyman 1995). Such cyber frauds are classified as an intentional, illegal attempt at causing an alteration and a distortion of the bank card details.

Consumers perceive that identity fraud is rising, even though research shows it is tapering off. Meanwhile, consumer losses are growing, due to causes ranging from lost or stolen cards and data breaches to theft via online channels, phone, and mail. Issuers must be able to juggle a number of responses, among them education, block-and-reissue, authentication, detection, and provision of various services.

To counter the problem, credit card companies constantly review security features and measures that are applied to cards and devote considerable resources to the maintenance of security systems and programming.

There are numerous challenges to dealing with credit card fraud, particularly since transactions do not require the physical presence of the seller and the purchaser. Since, one of the biggest concerns relating to security in e-commerce applications is the use of the credit/debit cards; the failure to secure the card information can cause a major damage to the organization in terms of financial fraud, identity theft, legal regulations, loss of consumer confidence, etc.

It is therefore important that a new approach, for example an intelligence led approach, be considered in combating card fraud.

Our own research has shown that in case of both hypotheses, i.e. whether the respondents have experience with cy-
ber attacks or banking fraud. From our research it is evident that the majority of respondents has encountered cyber attacks. This is confirmed by the fact that persons of presumably smaller interest than those operating in public and economic spheres are increasingly becoming the objects of cyber attacks. The aspects of payment card protection against counterfeit and unauthorised use begins with card issuers. The production of payment cards requires safety conditions identical to those of banknote printing. It is, however, extremely important to adhere to safety guidelines when carrying and using a bank card. Adherence to such guidelines by the clients, as outlined by all bank card issuers and commercial banks, is the primary pre-requisite for the decrease of the cyber attack success rate.

Based on the analyzed data it is clear that there are people who have not yet personally experienced hacking. Even though they constitute a minority with regards to the research, these people can be the basis for a group that can become the future focus of hackers precisely due to their ignorance of the problem. By informing this group about the existing preventative measures against hacking attacks, the threat of them being attacked can be eliminated. From the hackers’ point of view and based on the conducted tests, men seem to be a more interesting group to target. The reason for this phenomenon can potentially be that the hackers perceive men to be more likely to hold positions of significance and therefore the data obtained may hold greater value.

Acknowledgment

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References


Abstract: The use of social responsibility as a business management strategy was defined, from a theoretical point of view, was studied to determine its utility to the change of the productive matrix for Ecuador sustainability. A descriptive correlational research was carried out in four companies in the Pichincha province, demonstrating that there are significant differences in the integral performance of Corporate Social Responsibility regarding the change of the productive matrix; that the eight indicators that influence the most these differences were found. There was a positive correlation with the two indicators related to the change in the productive matrix, which provided empirical evidence that the companies that perform better in Social Responsibility have better conditions to develop the required production transformation.

Keywords: Corporate social responsibility; productive matrix; sustainability; indicators; Ecuador


JEL Classifications: M1

1. Introduction

For a number of years, social responsibility has been managed in companies both as an enabler of fulfilling their commitments to society (Friedman, 1970; de Castro 2005; Porter and Kramer, 2006; Bénabou and Tirole, 2010; Escudero and García, 2014; Stankevičius, Lukšaitė 2016; Samašonok et al. 2016), as for their ability to compete in an increasingly demanding environment, transforming over time into an important business strategy (Toro, 2006; Chirinos et al. 2013; Gasparènienè et al. 2016), also related to the company and economy sustainability (Montiel, 2008; Tvaronavičienè 2016; Sun, Fuschi 2015), Miriam, Radoslav 2017

In a very particular context for Latin America in the last years (Jáuregui, 2008; D’Amato, 2013), in the Republic of Ecuador companies begun to consider as fundamental axis of the economic policy promoted by the government of Rafael Correa (2008--), the transformation of the productive matrix of the country, defined as “the set of interactions between the different social actors who use the resources available to them to carry out the productive activities; Which includes the products, productive processes and social relations resulting from these processes” (Ecuador, 2012, p.1). In the current context, this becomes one of the fundamental pillars for the achievement of the country’s sustainability (Larrea, 2013).
One of the key actors for the transformation of the productive matrix (Vallejo, 2015) is undoubtedly the Ecuadorian company, by contributing to the productive chain with the creation of jobs, innovation, generation of networks, clusters and associations, in order to improve the productivity of the different sectors (Ecuador, 2015, p.106). It is the company where the main production processes take place, those capable of generating new and improved goods and services based on the knowledge and development of human talent (studied by Ciro, 2011 as a determining condition in the current context for the dynamization of productive processes), to modify the current export structure based on primary products without added value and overexploitation of natural resources.

The lack of a reference framework for the articulation of the different actors around the transformation of the productive matrix (Montenegro, 2015), coupled with the fact that in the initial documents the role of the Ecuadorian company was not clear, may be some of the causes that this purpose is still an aspiration for the socio-economic development of the country (Ochoa, 2015). It is precisely the achievement of this type of aspiration that requires coordination by the State, of efforts between the company and other social actors (Lozano et al., 2005; Romero, 2010) and the strategy of a coordinated handling of the “social responsibility among companies, governments and civil society (Miralles, 2003; Chumaceiro et al., 2013). In general, the axiom is that the implementation of strategies of social responsibility in Ecuadorian companies -imposed on the policy of change in the productive matrix- should positively impact, from the economic, environmental and social point of view, on the diversification of production; on the generation of added value; and on the selective substitution of imports and the improvement in exportable supply, as indicators of a socially responsible company (Chirinos et al., 2013).

Although from the theoretical point of view no studies have been found that relate to the Ecuadorian case, corporate social responsibility (CSR) strategies with the transformation of the productive matrix; The authors consider that the main links are at the level of which the company is - after incorporating CSR to its management - in better conditions to assume commitments with the society and the economic development of the nation (Avendaño, 2013) and to create products and new or improved services according to the new demands of society (European Communities Commission, 2001). According to Raufllet et al. (2012) the evaluation of CSR taking into account certain company indicators is one of the fundamental pillars for its performance. In this particular case, it is complex because, according to the analysis carried out by Strandberg (2010), the main norms and instruments of measurement of CSR do not include the product and the market of the company as priority aspects. For example, in the evaluation guides of INCAE (2010) and Ethos (2011), the treatment to these aspects is basically oriented to the environmental performance of the company and the quality management. Despite the theoretical deficit in previous studies on the subject and there is no suitable assessment guide for assessing the relationship between CSR strategies and company actions in order to meet a national demand such as the transformation of production, the present investigation makes a first empirical evaluation of this problem.

A study was carried out in four companies in the province of Pichincha, Ecuador, all linked to the strategic sectors identified in the production matrix, with the objective of assessing the CSR performance in relation to the required production transformation, and the main aspects they have influence on.

2. Material and methods

For the development of the research, theoretical methods were used in the analysis of the object of study (CSR) and its possible interrelationships with the process of transformation of the productive matrix in Ecuador. Based on the above, the Ethos Institute’s guide (2011) was used for the company’s self-assessment in the implementation and performance of CSR, with adaptations according to the characteristics of the organizations studied and adding two indicators that allow assessing compliance with regulations as well as the development of strategies that guarantee the change of the productive matrix (indicator one). Taking into account the objective of the study, it was deemed necessary to include an indicator referring to the capacity of the company for the development of the product and market that meet the requirements of the transformation of the productive matrix (indicator two).
Finally, 36 indicators (shown in Table 1 of the Results section) were studied in four companies in the province of Pichincha, Ecuador. The companies belong to three strategic sectors identified in the productive matrix: metal mechanics (one); Construction (two); Vehicles, automotive, bodies and parts (one). The existence or non-existence of significant differences in each indicator in the different companies was determined using the Kruskal-Wallis test under a significance level of 0.05; using SPSS v21. On the other hand, the level of completeness in the companies studied was determined taking into account the 36 integrated indicators using the nonparametric statistician mentioned above.

In order to compare the level of correlation between variables, the Pearson coefficient was applied, determining the existence of positive or negative correlations or non-existence of linear correlation, comparing all the indicators with indicators one and two respectively. The classification of the type of relationship between indicators was performed using the scale suggested by Suárez (2011).

3. Results and discussions

Table 1 shows the results of the integral analysis by companies, applying the Kruskal-Wallis test, observing the existence of significant differences in the overall behavior recorded when comparing the average ranges obtained by the companies in the 36 evaluated indicators (p = 0.000). Company two has the highest average rank (640.36), and company three has the second highest average rank (631.56), which shows that both are the best integrally with better overall scores.

<table>
<thead>
<tr>
<th>Company</th>
<th>Average ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>399.60</td>
</tr>
<tr>
<td>2</td>
<td>640.36</td>
</tr>
<tr>
<td>3</td>
<td>631.56</td>
</tr>
<tr>
<td>4</td>
<td>586.48</td>
</tr>
</tbody>
</table>

Contrast statistics of the test

<table>
<thead>
<tr>
<th>Asymp. Sig.</th>
<th>.000</th>
</tr>
</thead>
</table>

Although the study is performed in a small sample of companies, the significant differences in the integral behavior of them are considered as of high importance, taking into account that the lack of homogeneity in the management of companies that must be aligned to compliance of economic policy commits the implementation of projects of national interest, as demonstrated in the study of García et al. (2013) and Fernández et al. (2016).

The evaluation of the performance of each company in the indicators evaluated, applying the Kruskal-Wallis test is shown in Table 2.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Average ranks</th>
<th>Kruskal-Wallis test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Regulations and strategies for the change of the productive matrix</td>
<td>10.50 22.50 18.50 22.50</td>
<td>.002</td>
</tr>
<tr>
<td>2. Product and market</td>
<td>11.50 17.50 11.50 17.50</td>
<td>.061</td>
</tr>
<tr>
<td>3. Ethical commitments</td>
<td>39.46 50.85 56.60 47.08</td>
<td>.042</td>
</tr>
<tr>
<td>5. Corporate governance</td>
<td>14.80 23.55 20.10 23.55</td>
<td>.106</td>
</tr>
<tr>
<td>Indicator</td>
<td>Company A</td>
<td>Company B</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>7. Dialogue and involvement of the interested groups (stakeholders)</td>
<td>14.06</td>
<td>19.00</td>
</tr>
<tr>
<td>8. Social balance</td>
<td>12.00</td>
<td>45.92</td>
</tr>
<tr>
<td>9. Relations with labor union</td>
<td>7.40</td>
<td>12.10</td>
</tr>
<tr>
<td>10. Participatory management</td>
<td>5.20</td>
<td>11.70</td>
</tr>
<tr>
<td>12. Valuation of diversity</td>
<td>31.85</td>
<td>60.30</td>
</tr>
<tr>
<td>13. Relationship with outsourced workers</td>
<td>11.20</td>
<td>14.30</td>
</tr>
<tr>
<td>15. Health care, security and work conditions</td>
<td>19.83</td>
<td>25.50</td>
</tr>
<tr>
<td>16. Commitment with professional development and employability</td>
<td>8.07</td>
<td>18.50</td>
</tr>
<tr>
<td>17. Conduct against layoffs</td>
<td>5.20</td>
<td>13.40</td>
</tr>
<tr>
<td>18. Retirement preparation</td>
<td>9.70</td>
<td>11.30</td>
</tr>
<tr>
<td>19. Commitment to the improvement of the environment quality</td>
<td>11.75</td>
<td>22.25</td>
</tr>
<tr>
<td>20. Education and environmental awareness</td>
<td>5.50</td>
<td>9.50</td>
</tr>
<tr>
<td>21. Management of the impact on the environment and the life cycle of products and services</td>
<td>8.00</td>
<td>16.00</td>
</tr>
<tr>
<td>22. Reduction of material input and output</td>
<td>12.33</td>
<td>21.22</td>
</tr>
<tr>
<td>23. Suppliers selection criteria and evaluation</td>
<td>17.40</td>
<td>22.80</td>
</tr>
<tr>
<td>24. Forced labor in the productive chain</td>
<td>5.00</td>
<td>7.17</td>
</tr>
<tr>
<td>26. Policy of commercial communication</td>
<td>11.44</td>
<td>18.25</td>
</tr>
<tr>
<td>27. Excellence of attention</td>
<td>14.25</td>
<td>17.94</td>
</tr>
<tr>
<td>28. Knowledge and management of the potential damage of products and services</td>
<td>5.40</td>
<td>12.30</td>
</tr>
<tr>
<td>29. Management of the impact in the community and the environment</td>
<td>9.08</td>
<td>14.33</td>
</tr>
<tr>
<td>30. Relationship with local organizations</td>
<td>6.00</td>
<td>10.50</td>
</tr>
<tr>
<td>31. Financing of the social action</td>
<td>7.30</td>
<td>12.10</td>
</tr>
<tr>
<td>32. Involvement in social action</td>
<td>8.92</td>
<td>15.58</td>
</tr>
<tr>
<td>33. Contributions to political campaigns</td>
<td>9.00</td>
<td>8.88</td>
</tr>
<tr>
<td>34. Anti-corruption and anti-bribery practices</td>
<td>8.38</td>
<td>10.88</td>
</tr>
<tr>
<td>35. Leadership and social influence</td>
<td>4.50</td>
<td>8.50</td>
</tr>
<tr>
<td>36. Participation in government’s social projects</td>
<td>8.80</td>
<td>13.10</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors from statistical processing results

From the previous analysis, it can be observed that of the 36 indicators, there are eight that maintain significant differences in the four companies studied: regulations and strategies for the change of the productive matrix (one); Ethical commitments (three); Social balance (eight); Valuation of diversity (12); Relationship with outsourced workers (13); Commitment to professional development and employability (16); Conduct against layoffs (17) and management of the impact on the environment and the life cycle of products and services (21). Despite the voluntary nature of CSR, the importance of knowledge and application of legal standards for business management is recognized (European Commission, 2013). In this case, the change in the productive matrix is covered by the National Plan for Good Living, numerous documents of regulatory agencies, and more specifically in legislation such as the Organic Code of Production, Trade and Investment and the Organic Law of Regulation and Control of market power. However, its knowledge and application by the companies studied shows that there is no homogeneous behavior, which can compromise the success of the execution of plans and projects according to the basic axes of the productive transformation (Ecuador, 2012).
The relationship between ethics and social responsibility has been widely recognized. In the study of Rodríguez et al. (2007) based on a comparative analysis between Spanish and English companies; there are significant differences in the operationalization of ethical commitments according to CSR, coinciding with the results obtained in the present investigation. One of the easiest to explain results in terms of the differences found between companies is related to the social balance, therefore the theoretical and methodological inadequacies that prevail in the subject (Ortiz, 2010) impose a framework of action limited to the companies in a general manner. The labor edge of CSR is fundamental, given the influence of the workers’ perception of the company and its social commitments for good performance (Moros et al., 2014). In this area, the relationship with outsourced workers stands out because of their differences among the entities studied; commitment to professional development and employability; and behavior in the face of layoffs. These aspects should have a more homogeneous behavior given its high ethical and normative component. Thus, in the first issue, the results obtained differ from those of Salgado and González (2013), who demonstrate similar behaviors in this activity in Chilean salmon farms. Likewise, there are differences between the employability practices in the companies studied, which in Uruguay (2007) was recognized since then as a challenge for the business sector. In spite of the public policy in this respect, the companies maintain significant differences in the commitment to the professional development and the behavior in the face of layouts, differing with the results of García et al. (2013).

In this sense, the authors assess the behavior of diversity in the studied companies, which is very important in CSR in relation to gender and race equity and other issues (Gil, 2013). The results show that not all companies have a similar behavior in this regard, which coincides with the results of Cuesta et al. (2002) and that are far from the desired state given the nature of this indicator. The differences between companies in managing the impact on the environment and the life cycle of products and services coincide with the results of Peña and Serra (2013), demonstrating the importance of the environmental edge of CSR in this analysis.

The results of the analysis of the integral indicators by companies and indicator one, from the Pearson Correlation Coefficient are shown in Table 3.

<table>
<thead>
<tr>
<th>Companies</th>
<th>Integral indicators</th>
<th>Indicator 1. Regulations and strategies for the change of the productive matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>399,6</td>
<td>10,5</td>
</tr>
<tr>
<td>2</td>
<td>640,36</td>
<td>22,5</td>
</tr>
<tr>
<td>3</td>
<td>631,56</td>
<td>18,5</td>
</tr>
<tr>
<td>4</td>
<td>586,48</td>
<td>22,5</td>
</tr>
</tbody>
</table>

Pearson’s r 0,89645593

*Source: Prepared by the authors from statistical processing results*

Pearson’s correlation coefficient determined the existence of a high positive correlation (0.8964) between the variables studied, when comparing the average scores obtained by the companies in indicator one and the integral evaluations. This shows that the better the company’s overall performance in CSR the better it will be able to implement the regulations and strategies for the change of the productive matrix (indicator one), corroborating the axiom initially proposed in the paper.
The same analysis applied to indicator two is shown in Table 4.

Table 4. Analysis of the integral indicators by companies and indicator two. Pearson Correlation Coefficient

<table>
<thead>
<tr>
<th>Companies</th>
<th>Integral indicators</th>
<th>Indicator 2. Product and market</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>399,6</td>
<td>11,5</td>
</tr>
<tr>
<td>2</td>
<td>640,36</td>
<td>17,5</td>
</tr>
<tr>
<td>3</td>
<td>631,56</td>
<td>11,5</td>
</tr>
<tr>
<td>4</td>
<td>586,48</td>
<td>17,5</td>
</tr>
</tbody>
</table>

Pearson’s r  0,50239174

Source: Prepared by the authors from statistical processing results

The comparison of the average ranges established by companies with respect to indicator two determined the existence of a moderate positive correlation (0.5023), indicating that the positive integral performance of a company allows a superior performance in indicator two (product and market), although this is not as strong as the one established with the norms and strategies for the change of the productive matrix (indicator one). Take into consideration that the development of the product and the market as fundamental outputs for the productive transformation of the company, are subject to the management procedures applied by the company, understanding the knowledge and application of the rule as premises for it. The paper evaluates, with the objective of analyzing the influence of different CSR performance indicators in relation to the establishment of norms and strategies for the change of the productive matrix (indicator one) and the development of the product and the market (indicator Two) the correlation levels according to the Pearson Coefficient, which are shown in Table 5.

Table 5. Relations between the indicators evaluated and indicators one and two. Pearson Correlation Coefficient
Because of the importance of the indicator two, now it delves into some of the aspects with which it maintains a more significant type of correlation.

In this sense, it highlights in a negative way the relationship with the organizational culture, whose influence is recognized in the development of CSR by promoting “the generation of added value in products or services, creativity and innovation” (Aguilera and Puerto, 2012: 20). The high positive correlation found between corporate governance and the analyzed indicator corroborates the importance of the former for the development of CSR (Travassos, 2014; Salvioni and Gennari, 2016), in this case related to the transformation of the productive matrix.

Participatory management as a business trend that promotes the participation of workers as “key actors in achieving the objectives” (Alonso, 2015: 548) shows a moderate positive relationship with indicator two, a result that coincides with that of Medina et al. (2015), evidencing potential for their promotion in these companies in order to transform the productive matrix through CSR strategies. Positive correlations were observed from moderate to very high among some indicators related to the environmental performance of companies (19, 22, 28 and 29) with indicator two, which shows a concern of companies to enhance the environmental edge of CSR, coinciding with the results of Vernazza et al. (2014).

In spite of the importance of the role of social dialogue (Aragón and Rocha, 2009) and especially with interest groups in the implementation of CSR, in the companies that are analyzed this only influences moderately the responses to the social demand of transformation of production. Orjuela (2011) and Travassos (2014) expose the importance of communication and responsible relationships with their interest groups for the development of CSR.

In the case of the competitors, the correlation established is of a negative type, showing neglect on the part of the companies to this important interest group of great influence in the aspirations of transformation of the productive matrix (Villena, 2015). Another key interest group in this analysis is that of suppliers (Ramírez, 2015), which is valued in indicators 23 and 25, which show a very high and high positive correlation, respectively, with indicator two, which shows that in this aspect companies have a better behavior, unlike the findings of Medina et al. (2015).

The involvement and financing of the social action of the companies studied are related in a very low and moderate way, respectively, with the indicator being analyzed. This aspect is very important if you take into consideration the proposal of Abad (2005) to relate the social action of the company with the development of its products and services, especially added value that incorporate design criteria for all, accessibility of agreement to production and distribution patterns, as well as customer relationships. On the other hand, leadership and social influence, together with participation in governmental social projects, positively influence the development of alternative products and markets, coinciding with what has been studied by Lozano et al. (2005) who demonstrate that the quadrant where development of corporate social responsibility strategies and promotion by the government results in a shared vision and the development of social responsibility initiatives with a combination of resources and public facilitation.
Conclusions

1. The Ecuadorian company is one of the fundamental actors for the fulfillment of the transformation of productive matrix as part of the established economic policy for the country sustainability, to which the development of CSR can contribute, according to the theoretical analysis carried out.

2. Descriptive correlational research carried out in four companies in the province of Pichincha analyzing 36 indicators, showed the existence of significant differences in the performance of CSR as a function of the change in the productive matrix.

3. Of the 36 indicators studied, eight are the most influential in the significant differences between companies: regulations and strategies for the change of the productive matrix; Ethical commitments; Social balance; Valuation of diversity; Relationship with outsourced workers; Commitment to professional development and employability; Conduct against layoffs and manage the impact on the environment and the life cycle of products and services. Of these, four are related to the labor edge of CSR, fundamental in the implementation of business projects for the transformation of the productive matrix.

4. The particular analysis of the two indicators related to the company’s actions to change the productive matrix, and the integral performance in CSR allowed to observe a high positive correlation in the case of the implementation of regulations and strategies; and moderate positive with the development of the product and market, more subject to the management procedures applied by the company, understanding as premises the knowledge and application of the norm. This provides empirical evidence that the companies that perform better in CSR will be in a better position to develop the productive transformation established by the national economic policy.

5. Indicators such as organizational culture; corporate governance; participatory management; environmental performance; the relationship with interest groups, especially competition and suppliers; and social involvement through public projects, are some of the ones that are related more positively as negatively, with the process of productive transformation of the companies studied starting from the implementation of CSR strategies.

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NETWORK CAPITAL PHENOMENON AND ITS POSSIBILITIES UNDER THE INFLUENCE OF DEVELOPMENT OF INFORMATION AND COMMUNICATION TECHNOLOGIES

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Abstract. Network capital is a little explored phenomenon, but it is difficult to imagine the existence of man and society without networking effect. Network capital is a special type of social capital, its new branch in the e-society, the result of scientific and technical progress, in particular, the development of information and communication technologies (ICT). Network capital has a huge impact on the formation of modern society, accelerating and facilitating the development of globalization process and processes of global resource sharing and redistribution. Due to this positive influence, it blurs boundaries between global and local problems, creating new opportunities beyond the limitations of space or time, contributing to the economic development of enterprises at the local, regional and global level. Thereby becomes topical the necessity for a more efficient management of network capital, as well as the need to develop methods of its measurement and analysis. In the first part of the paper, authors examined the relevance of network capital phenomenon and generalized examples of its use in the modern e-society. In the second part of the article authors identified place of network capital in the context of aggregate capital, conducted a literature review, summarizing the main principles and concepts of network capital theory. The literature review showed that the role and possibilities of network capital development are poorly understood, a very small number of researches have been carried out on the subject and they do not present enough empirical analysis. The differences in terminology and interpretation of the phenomenon was revealed as well. In the third part of the article, authors analysed dynamics of the main ICT infrastructure indicators and indicators, which effect the development of network capital. The research helped to identify the main trends in network capital infrastructure changes over the past 10 years, as well as to ascertain the main problems and imbalances in its development. The analysis showed that between network capital and economic development of the country presents a very strong logarithmic dependence. At the end of the article authors presented conclusions on the work done. The paper is a preparatory base for further research in the field of network capital.

Keywords: network capital, network, networking, social capital, information and communication technology (ICT), information society, information economy, regional economy

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1. Introduction

Since time immemorial, people tend to join together to achieve common goals and improve their performance. Over time, the possibilities of cooperation expand, new methods of communication emerge, pace of technology development accelerates and takes place transformation of capital forms. The sociologist Endre Sik, who has significantly contributed to the study of network capital, writes: “In the course of transformation all other forms...
of capital (monetary, physical, human capital) were scarce and/or lost their value, hence trust and network capital became core assets, often the most crucial forms of capital to enable success in this mushrooming informal environment” (Sik 1994, p.54). Previously, communities were united by geography, but nowadays cooperation is based on common interests. At the new stage of history, in the age of information and computerization, it is appropriate to consider social capital in a new way and in a new context.

The development of technologies is rapidly changing modern economic processes at the micro and macro levels, automating and upgrading all areas of national economies. Along with the changes in production of goods and provision of services, information and communication technologies allow to erase geographical borders and distances, changing the idea of cooperation and collaboration, generating social networks and increasing the value of social capital. They create all the new tools for the transmission, exchange and storage of information at a distance, including the tools stimulating the creation of networks of interests: wikis, search engines, information aggregators, content advisors, groupware, mapping, tagging, meta tags, cloud collaboration. Virtual space and internet communities are developing – social networks, blogs and news portals, podcasting, RSS-feeds, etc. These changes in the methods of communication and cooperation bring fundamental modifications in the social and economic global processes, changing common and well-established concepts. These innovative changes in social processes are a strong incentive to promote the idea of network capital and endorse its analysis. Work in this area enables one to understand the nature of interaction, trust and cooperation in the new global digital environment.

2. The topicality of network capital and its examples in the modern economy

With innovative features of remote cooperation, new types of business and economic activities are developing. Communities and associations, connected by same interests, create social networks in the Internet environment (Allabouche et al. 2016; Samašonok et al. 2016; Prause 201; Fuschi, Tvaronavičienė 2016; Dlugoborskytė et al. 2015; Grubicka, Matuska 2015).

The development of network structure and technologies allows individuals to work in any company of the world without leaving their house. An excellent example of such cooperation is the freelance, or, in other words, self-employment like independent contractor. Specialists of different professions, who are able to carry out their work in electronic format or deliver it to another country, organize special online communities and use professional associations or websites to do work in digital environment. One of the most popular communities is Upwork service (former oDeck) and their statistics show that in early 2015 9.7 million freelancers and 3.8 million companies offering work were registered on the web service (Upwork 2015).

Another example is an outsourcing or, in other words, the possibility to transmit certain enterprise processes and functions to another organization. Outsourcing activity has become possible due to the development of technologies and social capital accumulation. Despite the fact that income from the final product belongs to the customer country, taxable administrative and personnel costs as well as a performer company’s profit bring significant revenue to national economy. These types of cooperation are particularly relevant in times of shortage of skilled IT developers. In fact, this is an absolutely logical and natural process of the world resources redistribution (in this case of labour resources) only in the electronic environment and using distant cooperation opportunities. In this situation, real labour emigration does not occur and does not bring any significant changes to the global demography.

One more important example of a platform for networking is the professional social network Linked In, which allows finding the necessary business contacts on the Internet. If in the case of social networks like Facebook and Instagram, the main target is informal, friendly chat and other social purposes, then professional networks contribute to economic development, creating new possibilities for business cooperation. Besides, it offers a very interesting concept of contact search that allows you to find not only the representatives of certain professions and businesses, but also people with certain interests, hobbies, skills and so on. Thus, the formation of contacts becomes easier and faster, and that contributes to overall economic development through the accumulation of network capital.
Surprising is also speed of social web networks development mentioned earlier – if in early 2009 the number of monthly active Facebook users worldwide was 197 millions, than at the beginning of 2016 this figure has risen to 1654 million (8 times). In turn, the numbers of LinkedIn members at the beginning of 2009 amounted to 37 million and in early 2016 this figure has increased by almost 12 times (433 million users) (Statista 2017). These findings very vividly illustrate the growing popularity of social networks in the digital space, allowing users to find contacts and communicate with other users outside their geographic and social proximity.

There are many examples of cooperation, built at the expense of network capital, including e-commerce, use of information and communication technologies for the performance of different professional duties, networking and e-government (the way of provision of information and public services in electronic environment).

The use of electronic services as a method of communication and networking may be observed on the example of the whole country. Estonia is one of the world leaders in terms of implementation and use of e-services in the daily life of inhabitants, enterprise operations and reporting, as well as a communication method with the government institutions, method of public services delivery and the innovative concept of “e-Residency”. “E-residency offers to every world citizen a government-issued digital identity and the opportunity to run a trusted company online, unleashing the world’s entrepreneurial potential. The main principles of e-Residency offer opportunities to establish an Estonian company online, conduct e-banking and remote money transfers, digitally sign documents and contracts, encrypt and transmit documents securely, administer the company from anywhere in the world and other functions.” (Government Office of Estonia 2016). The statistics show that in October 2016 the opportunity to receive e-Residency in Estonia was taken by nearly 10 thousand people. This innovation brings a number of positive effects for the country. First of all this is a raise in capital and investments and an increase in economic potential. Moreover, it attracts skilled labour to the country and provides access to the global market of intellectual property. Estonian e-Residency is an excellent example of network capital, which erases boundaries and distance between two cooperating agents.

The relevance of the network capital threads confirm the data of search results for articles published from 1992 to 2016 in the abstract and citation database Elsevier’s Scopus (Figure 1).

![Fig. 1. Percentage change in the number of all publications and publications, which contain words “network capital” in the title, abstract or keywords, in the Scopus abstract and citation database from 1992 to 2016](https://www.scopus.com/term/analyzer)
The graph shows the growth rate of all publications published in the database from 1992 to 2016, compared with a growth rate of publications, which contain words “network capital” in the title, abstract or keywords. The data was obtained by using the proposed instruments for search results analysis.

The results, mapped on the Figure 1, confirm the high researchers’ interest to the topic of network capital. The growth rate of the number of publications about the network capital significantly exceeds the growth rate of all other publications placed together. Thus, the average growth rate of publications on network capital in the period from 1992 to 2016 amounted to 13.6%, when the average growth rate for all subjects was only 5.3%. This finding suggests that the topic of network capital gained great popularity and relevance with the development of information and communication technologies and rapid integration of modern communication technologies in the daily lives of people.

The information technology sector is one of the most dynamic, innovative sectors with the highest growth potential, due to the constant automation of global manufacturing processes and growing popularity of e-commerce. According to the Statistical Office of the European Communities (Eurostat) almost 3/4 (74%) of all the European Union (EU) enterprises had their own web page or used the services of a third-part provider in 2014 (Eurostat 2015). Additionally, the “OECD Internet Economy Outlook 2015” data show that in the countries of the Organization for Economic Cooperation and Development (OECD), 95% of businesses had broadband connection in 2015 up from 86% in 2010 (OECD 2015). This phenomenon of rapid development and overall use of internet services is historically unique, especially taking into account that the Internet became available for the masses only in the late 1990s and the possibility to create an affordable and customized for their special needs webpage for commercial purposes appeared only in 2004 with the development of Web 2.0.

Social capital, with emphasis on the role of modern technology and new types of remote communication gradually extends to the socio-economic analysis focus. There is not much literature and studies available related to network capital; in this regard, this new type of capital has a great potential for research. At the same time, scientists involved in the research of the phenomenon of network capital, emphasize the problem of its measurement and definitions (M. Acevedo, B. Wellman, K. Frank, E. M. Uslaner etc.). Bari Wellman proposes to use frequency of social contact with friends, family and colleagues as an indicator of network capital (Wellman 2002, p.293), but Manuel Acevedo criticizes this approach, as these indicators are only a part of network capital and do not characterize it completely. Acevedo himself concludes that it is necessary to conduct a comprehensive study to develop a methodology for measuring network capital, which should be based on different interpretations of the concept of this phenomenon and factor analysis (Acevedo 2007, p.122). Basing on the theory of Michael Porter, one of the founders of the network capital theory, this type of capital should be considered much broader than only at the level of individuals – at the level of companies and even countries – agents, who generate this large-scale positive effect on the economy (Porter 1998, p.43–59).

Speaking of the lack of studies of this phenomenon in scientific literature, it is also important to note the inconsistency of terms. Often, scientists in their works write about social capital formed through electronic networks, without resorting to the term “network capital”. Van Bavel, Punie and Tupomi writes about ICT-enabled changes in social capital (Van Bavel, Punie, Tuomi 2004); Simpson analyses social capital through the interplay between physical infrastructure and soft technologies (Simpson 2005, p.102); Uslaner discusses social capital created in the Internet (Uslaner 2004, p.61), to name a few authors and works. These works explore all the same phenomenon with the same characteristics that will be further considered in the paper under the definition of network capital. This difference in terminology can be partially explained by the inter-disciplinary nature of the research of this type of capital, since it acts as the subject of attention of Sociology, Economics and Informatics.

In connection with these observations, the first part of the paper will be devoted to the definition of network capital, in turn, in the second part of the paper, the analysis of determinants of network capital formation and development will be made to refer to the current trends and to form a base for further research in this area.
3. The phenomenon of network capital and its research methodology

The analysis of scientific literature shows that researchers in their theories and concepts cannot get along without the concept of “network”. First of all, economists and sociologists have integrated this concept when explaining the phenomenon of social capital. “Thereby social capital may be defined as benefit carrying resources that are associated with belonging to a group: the network of links that cannot be used otherwise than through the groups or people who have a certain power and who are able to provide a “favour for a favour”.” (Mensikovs 2013, p.20). Even a more essential concept of “network” was proposed by John Urry in his monograph “Mobilities”, who explains the emergence of sociology of mobilities through the role of different networks in modern society – through “network capital”, which is actually an integral part of social capital. For Urry “network capital – is the ability to generate and maintain social relationships with people who are not necessarily located in the geographical neighbourhood, getting from this relationship emotional, financial or practical benefits (although often these benefits are enclosed in different objects and technologies or different means of media networking)” (Urry 2007, p.197). When Urry reveals the content of eight elements of network capital, readers can understand the role of different technological advances in its development and growth, and particularly the role of information and communication technologies.

All types of a person’s aggregate capital can be seen as network of different energies that can quickly change its configuration and significance of its individual components. Realized life strategy is always the result of a hybrid energy, connection and conversion of various types of aggregate capital.

The terms “hybrid”, “hybridization” are noticeably spreading around substantive fields of various scientific disciplines. With regard to the means of communication, the effect of hybridization has been clearly and vividly described by Marshall McLuhan: “Hybridization or a compound of these forces (communications) opens especially favourable opportunity to discover their structural components and properties... These communication tools, as extensions of ourselves, are beyond our control and depend on us in their interaction and evolution. The fact that they interact and multiply new offspring eternally has been a source of wonder” (McLuhan 1994). Of course, hybridization of various types of aggregate capital of a person was and still is a source of wonder, being “extension of ourselves”, demonstrating an amazing set of different energies, qualities and characteristics that are in demand by our increasingly complex being.

In the late 20th and early 21st century, social field scientists were increasingly using the capital theory. The great contribution to the development of this theory has been made by Pierre Bourdieu (Bourdieu 1986). Basing on his theory and methodology, were discovered how to integrate different types of human capital into the concept of “aggregate capital” and how to use it more variously in empirical studies of different social problems. The greater use of this approach for the first time was proposed at the international conference in Nałęczow (Poland): “We have to try to empirically determine the role of aggregate capital of a person or group, correlation and significance of its individual forms” (Menshikov 2008, p.180-186).

In 2008, the Institute of Social Studies of Daugavpils University implemented the project “Paradigm of Education: A Sociological Approach”, where an important place was given to the theory of aggregate capital – both in assessing the situation in the education system and the development of practices to improve the quality of education solutions (Menshikov 2011, p.149-160). During this project, the classification of different types of aggregate capital was developed, their incorporated, objectified and institutionalized state was described, and appropriate stratification systems, transmissions and measurements were presented. The aim of the research project was to overcome fragmentation of the theory of aggregate capital. To meet this goal an extensive classification of capital types was developed, were proposed indicators of its measurement. The following types of aggregate capital were studied empirically: economic, cultural, human (vocational and educational), physical, social, symbolic, geographical, administrative, political. (Menshikov 2016, p.89). In general, the empirical data confirmed the hypothesis: the amount of the individual capital depends on the level of education, level of income, as well as life strategy.
In 2012, the Institute of Social Studies of Daugavpils University implemented the research project “The aggregate capital, its structure and relationship to labour migration”, which has widely used the theory of aggregate capital (Menshikov, Vanags, Volkova 2013, p.226-236). During the study it was planned to evaluate the volume and the structure of aggregate capital of the inhabitants of Latgale, taking into account the needs of socio-economic development, as well as the expectations of people in the region, related to labour migration. Acceleration, dynamics, movement, moving, and other characteristics of the e-society became the basis of the emergence of sociology of mobility. The spread of new mobile network multiplies the capital, promotes network solidarity, expanding access to various activities and to the mobile lifestyle.

This requires increased attention of sociologists and other specialists in the fields of human and social sciences to mobility, to new features in modern lifestyle, especially lifestyle of the youth, who acquire the means of mobility faster than others. For this aim, in 2014 the Institute of Social Studies of Daugavpils University carried out a research project “Mobile lifestyle of modern youth” (Menshikov 2014, p.247-253). The findings of the sociological survey in Daugavpils (n = 355) suggest that in conditions of the e-society formation an access to the mobile lifestyle is expanding. The most important factors in favour of mobility are not only hardware and equipment (computers, mobile phones etc.), but the humanitarian and social technologies that allow to expand and enhance a network of solidarity, to accumulate network capital. The accomplished research projects have shown the importance of the aggregate capital theory, have brought important results in the analysis of various problems of the e-society formation. There is a growing role of non-economic types of aggregate capital in the implementation of people’s life strategy. An important conclusion was made: the role of network capital and cultural capital is growing dramatically.

To understand the basic concepts of network capital, a wide range of literature and scientific articles has been analysed. Michael Porter has made a significant contribution to the establishment of the importance of network capital, showing that network structure is one of the main engines of modern economy. Porter has proved that success of companies crucially depends on a larger structural unit – the cluster, whose part it is. The cluster can be estimated as a network of suppliers, manufacturers, consumers, elements of industrial infrastructure, research institutes, interconnected in the process of creation of benefit. Thus, as the core of the cluster, as a rule, serves a large firm or a community of similar firms that through vertical (chain of purchases and sales), as well as horizontal links (additional products and services, the use of similar specialized processes, technologies or institutions) interact with other organizations participating in the cluster. In addition to the cluster core, a significant contribution to the interaction of a single cluster is made by organizations that provide the necessary infrastructure and communications, as well as technology and information. Through these intermediaries the creation and further successful operation of the cluster becomes possible, and thus the formation of a network capital is achieved.

Michael Porter writes that “companies can source capital, goods, information, and technology from around the world, often with the click of a mouse, much of the conventional wisdom about how companies and nations compete needs to be overhauled. In theory, more open global markets and faster transportation and communication should diminish the role of location in competition. After all, anything that can be efficiently sourced from a distance through global markets and corporate networks is available to any company and therefore is essentially nullified as a source of competitive advantage” (Porter 1998, p.43). Thus, the evolution of information and communication infrastructure is one of the most important and significant conditions for the network capital development. In his later works, Michael Porter gives special importance to the Internet as a means of communication between clusters.

Further, many scientists develop the idea of network capital (M.Acevedo, B.Wellman, L.Simpson, A.Quan-Haase and B.Wellman, P.S.Adler and S.W.Kwon, J.Witte and K.Hampton, E.M.Uslaner, K.frank, E.Sik etc.) and despite the fact that scientists use different terminology, the concept of network capital remains extremely necessary and topical. Manuel Acevedo researched network capital in the sphere of economic influence. In his work “Network Capital: an expression of social capital in the Network Society”, he writes that in the economic context network capital is an important engine of economic development, by ensuring cooperation, which
would not be impossible without it (Acevedo 2007, p.117). In the literature, two major areas of the positive effects of network capital are underlined: firstly, it is an important condition for human development and, secondly, it is an important condition for the exchange and redistribution of the world’s resources and enhance of the world productivity.

In this case, very interesting is the article of Baiburina E.R. and Zhukavets O.S. Authors carried out the analysis of network capital as a driver of the company’s value from the position of the management science. Taking into account that the category “value” is one of the central values in economics, resulted analysis is also valuable for representatives of economic theory. One can agree with the definitions of network capital on the micro level (on the level of one company), which formulate authors of the article: “network capital is a set of synergies, which company acquires from the network communications and corporate networking resource capabilities” (Bauburina E.R. Zhukovec O.S. 2009, p. 131). However, the characteristic of the network capital as one of the types of intellectual capital proposed by authors is fallacious. From the point of the theory of society, in compliance with the concept of sociologist Talcott Parsons “System of Modern Societies (Foundations of Modern Sociology)”, intelligence and knowledge are related to culture as a social subsystem (sample reproduction and fiduciary sub-system), whose main function - sample reproduction in society. While social interactions are related to the other sub-system of society - societal community, whose main function is integration (Parsons T. 1971). The authors themselves noted that integration and resource mobilization - is a factor of the company’s intellectual growth, rather than its component (intellectual capital and its components is one of the major sources of company’s organic growth, growth that takes place due to the integration of its internal resources). When authors go on to the analysis of strategic management in order to use network capital as a driver of company’s value, they rather successfully form their own models of network capital growth, basing on publications in international journals. Unfortunately, authors do not distinguish real and virtual space, which becomes crucial for modern business partners’ social interaction.

Another interesting network capital research at the micro level was carried out in 2016 by authors Claudia Smith, J. Brock Smith and Eleanor Shaw, considering network capital in terms of private enterprises (Smith C., Smith J.B, Shaw E. 2017, p. 18 -34). The authors examined how entrepreneurs accrue, build and employ social capital in the digital environment. As a result, research scientists have put forward 12 proposals on how the social networks formed in the virtual space influence the social capital of enterprises, as well as confirmed the conclusion that this type of capital is significantly different from the social capital on the basis of personal contacts, showing it in 10 action mechanisms. This observation confirms the need to distinguish network capital as a specific and unique type of social capital, which material base serves ICT infrastructure. Nevertheless, the literature analysis showed that many studies ignore this need.

In the article „The impact of virtual embeddedness on new venture survival: Overcoming the liabilities of newness” (Morse E.A., Fowler W.S., Lawrence T.B., 2007, p.139-159) the authors very deeply analysed the concept of virtual embeddedness of enterprises, which is actually a skill and the ability to accumulate network capital, and developed a theoretical model of the impact of virtual embeddedness on the development of new enterprises. However, the authors were unable to confirm the model with practical research and in the conclusions of the article they emphasize the need to carry out a quantitative analysis of data on a practical example.

Speaking of network capital within the enterprise as an economic entity, an interesting article about a business partnership, based on the network structure (Fuschi, Tvaronaviciene 2016, p.282-289) was published in 2016. The authors propose a new approach to managerial design of a company, based on a mutually beneficial network of partner relationships, to achieve high-quality and efficient management. This approach is based on more than 20 years of experience and the authors believe in the prospects of the model, so they expressed interest in the registration of a trademark, what indicates the innovativeness and relevance of network capital in the modern economy.

The paper „Benefits of social capital for sustainable innovation capabilities” emphazises social capital as a driving factor for organizations while conducting innovations. (Laužikas, Daildaitė 2013, p.85-97). The authors
explore the added-value of social capital of companies and recognize the importance of networking between enterprises as an element of their development. Also of interest is the authors approach to the representation of a causal relationship between social capital and innovation, considering also reverse impact of social networks on innovation and confirming the positive reverse impact.

The Hungarian sociologist Endre Sik studies the role of networks in the cooperation of enterprises separated by geographical boundaries and distances (Sik 1994, 53-72). In his works he emphasizes two more factors that must be considered along with the network capital - informality and partial trust between cooperating agents of a network. Exactly this combination of complementary and, in fact, impossible without each other components is the main factor for the successful increase of social capital and the mechanism of economic development.

A significant contribution to the evolution of ideas and phenomenon of network capital has been made by the sociologist and co-director of the Toronto-based international NetLab Network Barry Wellman. Many of his studies have been conducted in collaboration with scientists from the computer field and computer science. In cooperation with Caroline Haythornthwaite, Barry Wellman examined the causes and the results of computer field scientists’ partnership using online and offline environment. The researchers came to the conclusion that the creation of networks and friendship between scientists promotes the best results of their work. In cooperation with colleagues, Barry Wellman carried out studies about the efficiency of work processes’ network organization in enterprises and researches about the relationship between citation of scientific articles and social ties of scientists (Haythornthwaite and Wellman 1998; Quan-Haase and Wellman 2007; White, Wellman, Nazer 2004). His later researches are focused on the analysis of the use of different types of communication, especially remote communication, and the study of their impact on various fields of activities. Barry Wellman showed how ICT development contributes to a society transformation from individual associations (groups) to networks, facilitating the mobility of goods and labour force and the globalization going beyond earlier limits.

In 2011 was published the study of Yoojung Kim, Dongyoung Sohn, Sejung and Marina Choi dedicated to cultural differences in the motivation for the use of social networking web pages (Y. Kim et al. 2011, p. 365-372). The authors used a survey of US and Korean college students to compare their experience of using online communities for the formation of social capital in the network. As a result, the study concluded that fundamental cultural values have significant influence on the ability to use network capital. These cultural values are very important in motivation of individuals to create bonds and contacts in the digital space. For example, Korean students are increasingly using the Internet community and specialized social networks for obtaining social support and to maintain the existing social relations, when American students give higher priority to entertainment and making new contacts, and therefore the network of US students is much wider and larger.

German sociologist Norbert Bolz writes about networks: „Network is a system of competition, where nodes are fighting for links; the more links node can attract, that is, the more links to the node is given, the more viable it is. For the economy, linking is important as the social added value: consumer choices are developing into links, which form the network. The most successful products of the 21st century are no longer determined by the material value, but by their “linking value”. In other words, the value of a product is expressed by the amount of links in which it became involved by buyers. Therefore, the goods’ social added value is at the centre of a new marketing strategy and many speculate, that now it is better to say not “marketing”, but “societing”. Thus, the motto of the internet economy says: connection is more important than the thing, which it connects” (Bolz N. 2007, p 132-133). The aggregate capital theory states that any kind of aggregate capital in varying degrees can be converted to economic capital. Therefore, it can be said that the social added value converts into economic added value.

Considering the methods of network capital measurement, it is necessary to note that a single methodology has not been developed and implemented on a large-scale project yet. Determination of network capital on a global and regional level is a very difficult process. Regarding the specific methods used by scientists before, it has been concluded that these methods are very limited, aimed at studying individual network capital of some specific associations, interest groups or particular enterprises, and do not provide extensive knowledge.
and global conclusions. For example, the sociologist S. Cohen developed a technique that allows to calculate the Social Network Index (index of social network) based on the method of survey with the use of specially designed questionnaires (Cohen, S., Doyle, W., etc. 1997, p. 1940-1944), but again, the use of this method to a wider audience requires a lot of time and resources.

Thus, a very few studies have been conducted in the field of network capital and the authors of previously mentioned works have confirmed the necessity for further development of this vital topic. It is noteworthy that most of the works focus on the personal aspects of the relationship that prevents highlighting the importance of network capital for the concept of economic efficiency. Moreover, in the works, which use an empirical analysis, a network of certain groups and communities is discussed without departing from one organization, what also does not provide objective results for the representation on the global or regional level. The concept of networks is widely used at the level of one enterprise, scientists begin to realize the importance of this new and little studied form of capital and its influence on the development of enterprises. The concept of network capital gained more popularity in recent decades, but we still know relatively little about possibilities of quantification of network capital and determination of its impact on the economy. We need to understand how to develop social networks and use them for the benefit of national and regional economies. Therefore, an important step in the research in this area is an empirical analysis of network capital and the factors that shape it and determine its impact on the economy.

4. Network capital analysis in the context of information and communication technologies development

As stated earlier in the paper, network capital is a difficult to measure phenomenon, especially in the global and regional context. However, there is a number of factors and different indexes representing, firstly, base or infrastructure for the establishment and elaboration of network capital and, secondly, indicators illustrating the level of its development. In other words, despite the complexity of network capital measurement, it is necessary to conduct an analysis of the factors that impact and determine network capital. Additionally, in this part of the article the indexes indirectly or directly indicating the volume of network capital will be analysed.

Figure 2 shows the main indicators of global information and communication technologies in the period from 2005 to 2015, expressed in comparable units per 100 inhabitants. These values characterize the level of infrastructure development necessary for the formation of network capital, as well as the potential for further development of networks.

![Figure 2](image-url)  
*Fig. 2. Key ICT indicators for the world 2005-2015 (penetration rates her 100 inhabitants),*estimate

First of all, the sharp increase of the indicators in the observed period can be evaluated very positively. This indicates the development of digital infrastructure and thus improved conditions for the development of network capital. Especially rapid is the increase in the number of mobile phone users, which is caused by the transition from a fixed wire phone communication to a new method of wireless connection. The same replacement trend is obvious for the indicators “fixed broadband subscriptions” and “active mobile-broadband subscriptions”.

Over the ten-year period, compared with 2005, the number of mobile-cellular telephone subscriptions increased 2.9 times (the average growth rate of 11.3%), the number of fixed broadband subscriptions grew 3.2 times (the average growth rate of 12.6%), the number of households with Internet access at home went up by 2.5 times (the average growth rate of 9.7%), the number of individuals using the Internet grew 2.7 times (the average growth rate of 10.7%) and between 2007 and 2015 the number of active mobile-broadband subscriptions went up by 11.7 times (the average growth rate 36.4%). This rapid growth is based on advances in technology, fall of their prices and increasing dependence on ICT services. The data of “Measuring the Information Society Report 2015” show that the prices of mobile-cellular in 2014 fell by 12% and mobile-broadband – by 25% compared with 2012 (International Telecommunication Union 2015, p.11). In developed countries, IT services are equally used almost in all sectors of economy, modernizing and automating goods production and transferring trade and services to the online environment. Returning to the example of Estonia, it is worth mentioning such important kinds of online networking as e-government, i-voting, e-tax board, e-business, e-school etc. Of course, attention should be paid also to contemporary social transformation – the change of usual methods of communication and the creation of social ties in the digital environment.

Another important observation is a slowdown of certain indicators. If the number of mobile-cellular telephone subscriptions slows its growth in connection with the approach to the peak, then falling growth rates of the number of households with Internet access at home and the number of individuals using the Internet, may be a signal of the market surfeit and may point at the need to solve the problems that hinder the further growth of indicators. Taking into account that both indicators are the most significant in the context of network capital, since they characterize access to ICT and use of the world’s digital space, where these networks are formed, an improvement of the situation of uneven world region development on a regional level is a very important task.

The data show that more than a half the world’s population in 2015 had access to broadband (47.2 out of 100 people – mobile telephony, 10.8 – fixed), 46.4 out of 100 households had access to the Internet and 43.4 out of 100 people used the Internet. On the one hand, given the importance of information technology in modern world, these figures are quite low: in fact, less than half of the world’s population in their daily operations use the opportunities of the digital space. On the other hand, not all countries have achieved a certain level of development at which it becomes impossible to do without innovative technologies and the level of income at which a country’s population can afford these technologies in everyday life.

The Figure 3 displays the above-analysed indicators considered for the two groups of countries: developed and developing countries (the classification based on UN M49). The data show that the level of ICT infrastructure in developed countries is far ahead of the level of developing countries. This digital divide is explained, first of all, by a lower standard of living, due to which people in developing countries cannot afford to use innovative means of communication. This fact directly points at a poorly developed network capital and insufficiently used possibilities of network capital in these countries. Speaking about the potential of network capital in less developed countries, the amazing pace of ICT development should be noted. Between 2005 and 2015, the average growth rates in developing countries exceeded the growth rates in developed countries at an average of three times. Yet again, it is worth paying attention to the trend noticed earlier: the reduction of growth rates over time. This trend is typical for both developed and developing countries (International Telecommunication Union 2015). If in the developed countries this observation is attributable to the approximation to the surfeit point, in the developing countries this indicates fairly low limits of technology development, and thus limits of the network capital capacity if the situation does not change.
Returning to the value of the indicators, it should be noted that 82.2% of the population in the developed countries used the Internet in 2015, which is an extremely high rate, making a discount on population, dropping out from the category of Internet users (mostly by age). However, the rate was only 35.5% in the developing countries, indicating a low availability of networks and thereby the little possibilities of network capital use. Regarding the differences in the availability of ICT “Measuring the Information Society Report 2015” states that in many developing countries, for example, there are substantial differences in telephone and Internet penetration between urban and rural areas, often exacerbated by the lack of broadband capacity in the latter. A significant digital divide persists between men and women in many countries, and there are widespread digital divides between those with more or less income, associated with ICT affordability; with higher or lower educational attainment, particularly associated with the capabilities required for Internet use; and with other factors affecting the inclusion or marginalization of particular social groups, for example, persons with disabilities (International Telecommunication Union 2015, p.3). To reduce this social inequality in terms of ICT development and to improve global access to ICTs (including decrease in prices) the strategy “The Connect 2020 Agenda” has been developed, which can significantly affect further positive changes in the development of network capital.

Next, the level of ICT infrastructure development across regions will be considered. The data is summarized in the Figure 4.
Statistics show that the leader in terms of network capital infrastructure is Europe presenting 82.1% of households with Internet access at home and 77.6% of the population using the Internet. The second place belongs to America and here it should be noted that in terms of the ICT development and their accessibility, North America can compete with Europe for leadership, however, in the available statistics North America’s data is combined with South America’s indicators, what distorts the results. The last place takes Africa, due to a wide gap from other regions in terms of all indicators, what is directly linked to economic factors. All these observations lead to the conclusion that in the developed countries with a higher level of well-being, network capital can be explored faster and on a larger scale than in the less developed regions.

One of the main reasons for this variance in the level of ICT development and use is the difference in prices. Figure 5 shows the data for mobile-broadband prices in the countries, divided into groups depending on the level of its development: developed, developing and least developed countries. The data in the graph is expressed as percentages of gross national income per capita, which allows to evaluate the real situation very well not in absolute figures, but rather in terms of purchasing power. The graph shows how big the difference between prices in different countries is depending on their level of a country’s economic well-being. We can see that technologies in the developed countries are many times more affordable than in lower-income countries. For example, prices for prepaid computer-based communication, expressed on a comparable basis, in developed countries are 7 times lower than in developing countries and 15 times lower than in the least developed countries. This fact can be evaluated very negatively, since it indicates a major problem hindering the development of the network capital in the less developed countries of the world.

![Figure 5. Mobile-broadband prices, developed and developing countries and LDCs, 2014 (%gross national income per capita)](http://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2015/MISR2015-w5.pdf)

Besides the problem of high price differentiation, there is also a significant problem with access to digital technology - the uneven coverage of broadband. At “ITU Plenipotentiary Conference 2014”, presented data has shown that if in the developed countries mobile coverage reaches almost 90% of territory, then in the least developed countries it is just above 10%, what significantly affects both the quality and the availability of the network. This factor is mainly connected to the low financial impact of network infrastructure investments due to the low income level of population. That makes it important to consider the possibility of public investments in network infrastructure to improve the availability of ICT, as well to consider the opportunity to develop more affordable network products with lower efficiency and at lower price. Continuing the idea of network coverage, problems with ICT infrastructure in rural areas should also be noted. Materials of “ITU Plenipotentiary Conference 2014” show that 89% of the world urban areas have 3G coverage when the coverage rate for rural areas is only 29%. These observations lead to the conclusion about uneven technological development of world regions: urban population and population of the developed countries initially have much greater opportunities for the use of network capital than the population of rural areas and countries with a lower level of development.
Another noteworthy indicator of network capital is the ICT Development Index (IDI), an index published by the United Nations International Telecommunication Union, based on internationally agreed information and communication technologies (ICT) indicators, summarizing the 11 indicators and which is the main indicator to measure the formation and development of information society. It can be used to monitor and compare developments in information and communication technology between countries and over time (International Telecommunication Union 2015, p.39). The index is based on three main characteristic areas: availability of ICT, use of ICT and ICT skills, thereby determining the overall impact of ICT on society. All these indicators very well fit into the theory of network capital, reflecting the infrastructure for its development and use of network communications for its formation, in other words, the potential of its accumulation. This term has not been used previously in the literature; however, it very aptly describes the idea of the index. The first five places in the IDI in 2015 occupied South Korea, Denmark, Iceland, United Kingdom and Sweden. Latvia took 37th place, by 17 points behind from Estonia (20th place), 3 points ahead of Lithuania (40th place) and gaining 7.16 points at 8.93 points in leading South Korea (International Telecommunication Union 2015).

The next step of analysis was to identify relation between network capital and economic development. ICT Development Index has been chosen as an indicator of the network capital capacity, and GDP per capita in Purchasing Power Parity (PPS) – as the indicator of economic development. The results are reflected in the Figure 6.

![Figure 6](image_url)

**Fig. 6.** ICT Development Index (IDI) and Gross domestic product (GDP) per capita relation, 2015 (n=166)

*Source:* Authors’ calculations, based on the data about GDP per capita 2015 from International Monetary Fund and IDI data from Measuring the Information Society Report2015

The analysis showed that there is a very strong positive relationship between the potential of network capital accumulation and economic development: the higher the potential of network capital accumulation is, the higher is the level of the country’s development (correlation coefficient 0.890; p-value 0.000). However, this relationship is not linear, but logarithmic: with the increase in coefficients, the positive effect decreases. That means reaching a certain high point, when, with the increase in GDP per capita, the potential of network capital accumulation does not growth. This dependency may be expressed as a regression equation: IDI=0.751+1.712ln(GDP per capita). A strong relationship can be explained by the financial possibilities of the higher-income countries, thus, high investments in ICT infrastructure and the dependence of the economy of the ICT in more developed countries. Similar results showed the analysis of the IDI subindexes (ICT access, ICT use and ICT skills), which revealed a strong subindexes relation with GDP per capita.
Among individual countries, particularly interesting cases are those breaking out from the general trend. Positive examples are Estonia (throughout the whole research showing remarkable results), South Korea, Moldova, Belarus and Barbados, which show a significantly higher potential of network capital accumulation than expected at their level of GDP per capita. These examples are of particular interest and require further study. It is necessary to examine the policy of the ICT development in these countries to identify the factors contributing to such a positive outcome. An interesting observation is that Latvia also shows the result of above average with IDI 7.16 and GDP per capita 24.65.

Negative examples of inefficient use of the potential of network capital accumulation are primarily African (including Equatorial Guinea, Gabon) and Arab countries (including Kuwait, United Arab Emirates, Qatar, Brunei and Saudi Arabia). This fact is interesting, because the main Arab states’ revenues are associated with the mining industry, pointing at the low significance of ICT in the economies of these countries. It can be concluded that the development of network capital is highly dependent on the industry structure in the country that makes it more or less interested in ICT investment.

The graph 7 shows the division of countries into 4 groups depending on the level of GDP per capita and ICT Development Index indicators.

![Graph showing the division of countries into 4 groups depending on the level of GDP per capita and ICT Development Index indicators.](image)

**Fig. 7.** World countries division by level of ICT Development Index (IDI) and Gross domestic product (GDP) per capita, 2015 (n=166)

*Source:* Made by authors, based on the data about GDP per capita 2015 from International Monetary Fund and IDI data from Measuring the Information Society Report 2015

To determine the place of each country in a particular group, the average level of IDI in 2015 (5.01) and the minimal level of GDP per capita (PPS) for high-income countries in 2015 according to the World Bank classification was used. Thus, all the world’s countries have been divided into 4 categories: countries with low GDP per capita and IDI (red); countries with low GDP per capita, but high level of IDI (yellow); countries with high...
GDP per capita, but low level of IDI (blue) and countries with high GDP per capita and IDI (green). Grey color marks countries whose data were not available for analysis.

Graphical display of grouping lets see clearly expressed regional consistency of the results. Thus, high GDP per capita and ICT Development Index indicators are observed in the region of North America, Europe and northern Asia, as well as in the southern part of Latin America and Australia. Low GDP per capita and IDI indicators are typical for the African region, north-west of South America, southern parts of Asia and the northern countries of Australia and Oceania region. Countries that fall into these two categories are evidence of the earlier established relation between the development of information and communication technologies and the level of economic development of a region.

Of greater interest for the study are countries, which trapped in the category “high GDP per capita and low IDI index” and “low GDP per capita and high IDI index”, as they are results out of the general trend. For example, the group of low-income, but high levels of ICT infrastructure includes such countries as Moldova, Ukraine, Bosnia and Herzegovina, and Serbia, whose policy of recent years has been focused on facilitating the introduction and development of ICT and support of IT and ICT companies. These countries use their advantage in the form of relatively low and thus competitive wages in the European region for the formation of new enterprises and attraction of foreign investment and customers. It can also be assumed that these countries are at the stage of investment in innovative technologies, when the return on the cost may not be felt in full, in other words, lag of ICT investment. It is quite possible, that they are in the time interval, which is required for enterprises to implement new information technology and learn to use them effectively. This period of time is highly variable and depends on the state of the IT market at the time of investment. A large positive impact of information technologies on the growth of GDP per capita is observed only after reaching a certain minimum threshold of IT development. In the case of China’s presence in the group of countries with low income, but high level of ICT infrastructure, it is connected with the unique economic structure of the country. China is one of the few countries, which manages so effectively use low-skilled labour and physical labour of population, achieving good economic performance of high-volume production, without the need for large investments in ICT infrastructure.

In the category of countries with high income but low ICT levels is included Iran, whose stage of economic development is in the gradual transformation from a centrally-planned economy to a free market economy that has already affected the economic performance, but apparently the transformation has lesser affected ICT. In addition, the explanation to this could be the economic structure of the country, which is based on the sectors of mining and processing oil and natural gas. In the category of low IDI and high GDP are also included such countries as Gabon and Equatorial Guinea, whose place in the group can also be explained by the industrial structure, where an important place is given to the low-skilled manufacturing industry workforce, as well as agriculture. In Cuba and Mexico the highest employment is observed in tourism industry and size of the business in the countries is characterized by low-innovative small and medium-sized enterprises. That means that use of information technology and ICT infrastructure, and thus, the potential development of network capital in these countries is much lower. This group of high-income countries with the low level of ICT development is the smallest - it includes only 7 countries that confirms previously noticed relationship between the level of ICT infrastructure and the overall economic development of a country.

Another index that certainly deserves attention in the context of network capital is the Networked Society City Index (NSCI) by Ericsson in collaboration with Sweco, a leading consultancy firm specializing in sustainable development. The index seeks to inspire and contribute to society development around the world, and in cities in particular. It includes 40+ major world cities and provides a framework for measuring ICT maturity in relation to social, economic and environmental progress. It can be used to exploit emerging possibilities associated with a connected world. Innovative ways to communicate and share information create new collaborations and organizations that are adapted to a more connected and individualized society (Ericsson 2016). In fact, this index is the only available indicator of network capital on a global scale; however, again, it includes only a small fraction of the world’s cities (41 cities). It is worth noting that the developers of the index do not refer to the theory of network capital and do not use this definition.
The results of cities’ ranking in the Networked Society City Index are displayed in Figure 8. The figure shows the relationship between maturity of ICT in the cities and triple bottom line measurements (TBL) – social, economic, and environmental – reflecting the three dimensions of sustainable development of the cities. The result and place of each country in the index is based on this relationship. Thus, in the result, not only the level of ICT development in the city is important, but also the successful use of the opportunities that these technologies offer, what makes this figure very objective in terms of the characteristics of network capital.

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**Fig. 8.** Networked Society City Index ranking and the relation between triple bottom line (TBL) and ICT maturity, 2016 (n=41)

*Source: Ericsson (2016). Networked Society City Index 2016 Edition*

The data show that the leaders among the cities, analysed in terms of infrastructure and the accumulation of network capital, are Stockholm, London, Singapore, Paris, and Copenhagen. This means that there are one of the highest levels of ICT development in these cities and at the same time the cities have got high marks in the triple bottom line dimensions. The correlation, identified in the index, indicates a positive relationship between the ICT development level and social, economic, and environmental development. “Networked Society City Index 2016 Edition” explains this positive relationship as affluent cities have reaped the benefits of early industrialization and are indeed able to invest more in ICT and are, partly due to preconditions, better at utilizing ICT investments than developing economies (Ericsson 2016). An annual improvement, revealed by the index, is also worth mentioning, as it indicates the increasing importance of network capital and increase of the capital itself.

The empirical analysis of available statistics allowed to identify the main trends in the development of network capital at global and regional levels and revealed the strong dependence between the ICT infrastructure and the economic development of a country. By means of detailed analysis, it has been possible to identify the problems associated with the development of network capital and to provide a basis for further research on this topic.
Conclusions

The analysis of literature and previously conducted studies has shown that the role and the capacity of network capital development is poorly understood, there are only few studies on this topic and they are not based on substantial empirical analysis. In theoretical studies, the differences in terminology and the interpretation of the phenomenon of network capital are observed. To determine the object of the study, the authors have formed the concept of network capital as a branch of social capital, which is based on the bonds formed by the use of ICTs.

It was stated that a large part of the previously conducted researches focuses on aspects of personal relationships and does not give a possibility to detail network capital for the concept of economic performance. Moreover, in the works, where an empirical analysis has been undertaken, networks of certain groups, communities and particular enterprises are discussed without departing from one organization, what does not provide objective results for the representation on the global and regional level. The concept of networking is widely used at the micro level, scientists begin to realize the importance of this little studied form of capital and its influence on the development of enterprises in the region. This finding gave rise to a further empirical analysis and has shown the need to find the capabilities of network capital measurement at the global and regional level.

The analysis of the main ICT infrastructure indicators’ dynamics has shown positive trends in the development of conditions for the network capital accumulation. All observed indicators have shown a sharp increase in the period from 2005 to 2015. However, some trends can be evaluated negatively: a slowdown of the growth rates of the number of households with Internet access at home and the number of individuals using the Internet. This conclusion leads to questioning the market saturation in the developed regions and the need to solve problems that hinder further growth rates in the less developed regions.

By means of the statistical analysis, it has been determined that the level of ICT infrastructure in the developed countries is far ahead of the level of the developing countries. This conclusion was confirmed by the analysis of the ICT infrastructure by region and the analysis of network capital by cities – network capital in developed areas with a higher level of well-being explores faster and on a larger scale than in the less developed regions. It has been concluded, that the development of network capital is highly dependent on the industry structure in the country that makes it more or less interested in ICT investment and support of the sector. The further analysis helped to establish that one of the main reasons for this variance in the level of ICT development and use is the difference in prices. In addition to a large differentiation in prices, there is a problem with the access to digital technology – the uneven coverage of broadband in developed and developing countries, urban and rural areas. That makes it important to consider the possibility of public investments in network infrastructure in less developed regions and rural areas to improve the availability of ICT, as well as to consider the opportunities to develop more affordable network products with lower efficiency and lower prices.

The analysis has shown that there is a very strong positive relationship between the potential of network capital accumulation and economic development: the higher the potential of network capital accumulation, the higher is the level of the country’s development. However, this relationship is not linear, but logarithmic: with the increase in coefficients the positive effect decreases, which designates reaching a certain high point. The further analysis has shown that Estonia (showing remarkable results throughout the whole study), South Korea, Moldova, Belarus and Barbados demonstrate a significantly higher potential for network capital accumulation than expected at their level of GDP per capita. These examples are of particular interest and require further study.

Graphical analysis of the world countries grouping depending on the level of ICT infrastructure development and the level of GDP showed expressed regional consistency of the grouping results. Thus, high GDP per capita and ICT Development Index indicators are observed in the region of North America, Europe, and northern Asia, as well as in the southern part of Latin America and Australia. Low GDP per capita and IDI indicators are typical for the African region, north-west of South America, southern parts of Asia and the northern countries of Australia and Oceania region.
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ISSUES OF THE STATE AND SOCIETY SECURITY (Part II): MANAGEMENT OF CONTROL OVER INDIVIDUAL CRIMINAL PROCESSES

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Abstract. The Part II is the continuation of the discussions begun in the last issue of Journal of Security and Sustainability Issues 6(3) in area of ensuring public security in the fight against crime and focuses in particular on the importance of creating models for control and prevention of new crime acts. Also, the problems of prevention and control of some conditionally distinguished criminal processes – shadow economy, corruption, fight against human trafficking and domestic violence – are scrutinized. In consideration of the limited scope of the work and striving for the concentration of the research, analysis of these criminal processes is conducted just to the extent it is important in order to distinguish the main topical issues pertaining to the modernization of coordination for ensuring public security.

Keywords: public security, crime, shadow economy, corruption, human trafficking, domestic violence, optimization, modernization

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JEL Codes: K1, K14, F52

1. Introduction

Contemporary crime, under the effect of globalization processes, forces to search for new opportunities to overcome crime. Therefore, when continuing this part of the work, expedient to discuss some specificities of control over criminal processes. Four examples were selected for this purpose as expedient to be discussed: shadow economy, corruption, trafficking in human beings and domestic violence. These examples have been selected due to their exclusive topicality in Lithuania.

A problem of the shadow economy in Lithuania, like in other Baltic countries, is urgent due to the geopolitical position; for example, due to differences in prices for goods the scope of smuggling has been increasing. Society is prone to justify the existence of the shadow economy, and such approach is to be linked with the improper tax system and dissatisfaction of the residents with their life quality.

The relevance of the corruption problem in Lithuania is witnessed by its high latency and the research data, wherefrom it is evident that the residents of Lithuania indicated corruption as one of the most important public security problems (Vileikiene 2012).

A corruption problem, like a problem of trafficking in people, is to be related to the augmented influence of
transnational organized crime groups due to globalization. This is also emphasized in the Public Security Development Program for 2015–2025, underlining that the main traits of Lithuanian organized crime groups are the leadership in the region of the Baltic Sea countries, intermediation between criminal groups of the Russian Federation and the EU Member States, international mobility, usage of most sophisticated information and communication technologies, disposition of large financial resources, and a strong influence of corruption (Republic of Lithuania Seimas Resolution No. XII-1682, 2015).

Finally, the problems of domestic violence prevention are discussed in consideration of the altered regulation in 2011 and its results.

2. Reduction of the shadow economy

The growth of the shadow economy is determined by the following economic factors: the rapidly decreasing gross domestic product, an increasing level of unemployment, significant reduction of the national budgetary income, hindering “the opportunities for implementing the national economic and social policy” (Krumplytė 2009). The shadow economy is a complex and multi-faceted phenomenon, which may be described as “the economic activity pursued without applying the requirements and restrictions of legal acts when such activities are strictly regulated and regulable” (Krumplyte 2009).

The factors of the shadow economy are divided into economic, legal administrative and social psychological (Krumplytė 2009, Gasparėnienė et al. 2016, Tvaronavičienė et al. 2016).

One of the key legal administrative factors of the shadow economy is deemed to be the unreasonably high intensity of legal regulation. If freedom of market players is too much restricted by imposing unreasonable restraints, introducing special requirements, and extending a list of activities under license, the scope of the shadow economy swells up. The shadow economy growth may be stimulated by gaps in legal acts, making it possible to escape taxation, and a frequent alteration of legal acts, overburdening the opportunity to perform economic activity legally. The improperly provided administrative services are also of special importance, for example, an impracticable “one window” principle and inadequate provision of information. In addition, social security, employment and taxation policies have a big impact on the growth of the shadow economy.

In the first case the scope of the shadow economy augments if measures for increasing employment are not undertaken, residents are not granted sufficient social guarantees in labor relations or in the event of unemployment.

In the second case the rise of the shadow economy is stimulated by the gap between the average and minimum wages in the country, complexity, inflexibility and ineffectiveness of tax administration, insufficient education and information on tax issues (Krumplyte 2009).

As noted by A. Pocius (2015), the main cause for a growing shadow economy in the developed countries is a high level of taxation (for example, a taxation level in West Europe may reach 40 percent–50 percent of the wages). This problem, however, in the case of Lithuania is of special urgency, since, as compared to the West European countries, living standards in Lithuania are not high. For example, the excise goods are purchased with the greatest difficulty in Bulgaria, Lithuania, and Romania.

Meanwhile, the lowest share of the average wages for a basket of excise goods is allocated by such countries as Luxembourg, Denmark, and Germany. According to V. Żukauskas (2012), great differences between moderate prices for excise goods are predetermined by differences in the average living standards: “the lower living standards automatically predetermine low moderate prices, stimulate residents to reduce the consumption of goods and services or to search for alternatives, as well as for cheaper goods and services in the shadow economy.”
Evidently, however, it is difficult to impact the living standards by using the administrative legal regulation measures alone. Therefore, some other options should be sought to overcome the problem by legal measures.

According to experts, the most effective measures for control over the shadow economy shall be tax reduction (indicated by 66.2 percent of the experts, participating in the survey), ensuring the stability of tax laws (46.8 percent of experts), explicitness of legal acts, reducing the opportunity to interpret them diversely (38.1 percent of experts), and inevitability of sanctions for law offences (30.8 percent of experts) (Krumplytė 2009).

It is noteworthy that utmost attention in Lithuania is devoted to ensuring the inevitability of sanctions for law offences. Institutions, responsible for controlling the shadow economy, most notable of which – the Financial Crime Investigation Service under the MoI, and the State Tax Inspectorate under the Ministry of Finance – are focused on the prevention of the on-going processes and application of sanctions thereof. These measures are accorded paramount attention in the fundamental legal acts: Law on the Financial Crime Investigation Service (2002), Law on the Prevention of Money Laundering and Terrorist Financing (1997), Law on Tax Administration (2004).

Meanwhile, practically, only the National Program for Crime Prevention and Control (2003) has highlighted certain economic and financial crime control measures pertaining to the real shadow economy prevention: to orient law enforcement institutions, to develop prevention and control measures and to apply them against crimes, causing significant material damage to the state, natural and legal persons:

- money laundering, fraud, misappropriation of property or squandering in the economic sphere, making and realizing fake money, smuggling, breaches of intellectual property rights, counterfeit of payment cards and cyber crimes;
- to improve the system of law enforcement institutions detecting and investigating financial offences, the coordination of actions and information exchange, to ensure proper cooperation with relevant financial and other institutions;
- to improve the legal framework regulating prevention and control of economic and financial crimes, to eliminate gaps in it and faults in the activity of state institutions;
- to expand international cooperation, to support and participate in domestic and international investigations by monitoring and analyzing the tendencies of money laundering, other economic and financial offences, international practice of prevention and control of such crimes;
- carrying out money laundering prevention, to provide information and educate the public and civil servants on how to recognize money laundering manifestations and to fight them; to raise the level of legal and administrative readiness to detect and investigate economic and financial offences committed with the help of computers, telecommunications, fake payment cards, to strengthen interagency and international cooperation.

However, it should be noted that the newer strategy of the fight against the shadow economy has not been adopted in Lithuania though the problem persists. At the same time the Program 2003 does not emphasize certain recent problematic aspects of the shadow economy, the present economic and social situation is not and cannot be taken into account. The Public Security Development Program for 2015–2025 does not envisage any specific measures for the shadow economy control.

In summary, the shadow economy is defined as the economic activity pursued without following the requirements and restrictions of legal acts when such activities are strictly regulated and regulable. The factors of the shadow economy are subdivided into economic, legal administrative and social psychological which are closely interrelated.

The key legal administrative factors of the shadow economy include the unreasonably high intensity of legal regulation, gaps in legal acts, making it possible to escape taxation, a frequent alteration of legal acts, and the improperly provided administrative services. The rise of the shadow economy is also impacted by the improperly implemented social security and tax policy measures.
The most effective shadow economy control measures would be tax reduction, ensuring the stability of tax laws, explicitness of legal acts, reducing the opportunity to interpret them diversely, and inevitability of sanctions for law offences.

Utmost attention in Lithuania is focused exactly on the latter measure, whereas prevention measures are listed only in Program for Crime Prevention and Control 2003. The Public Security Development Program for 2015–2025 does not foresee any specific measures for the shadow economy control.

Therefore, a conclusion is to be made that it is necessary to adopt a strategy for control of the shadow economy whereby the measures for combating the shadow economy and its prevention be foreseen in consideration of the present-day social and economic tendencies.

3. Corruption prevention

Corruption is a many-sided phenomenon which despite diversity of political, legal and economic systems in different countries where it exists shares common trends of its development. Moreover, its history is as ancient as the civilization itself. Corruption significantly influences stability and security of many countries, undermines democratic and moral principles as well as hampers the economic and political development of the countries. That is why the world community treats corruption as the major social problem to solve which is the priority in crime fighting (Teivāns-Treinovskis, Amosova 2016).

According to J. Palidauskaitė, rudiments of corruption date back to the Assyrian civilization, this being witnessed by the suits from the 12th century BC special archives about the officials who took bribes. Today, “with the development of societies and technologies, corruption acquires still more new forms” (Palidauskaite 2005). Hence, corruption is not just the phenomenon, characteristic of modern societies and states.

Secondly, this evidences that only conditional corruption regulation is possible since the complete elimination of this phenomenon is impossible. However, estimates of corruption damage caused to the state are significant indeed. For example, by calculations of financial expert G. Nausėda, the annual bribery price in 2004 even exceeded the amount of profit tax collected to the state budget (Palidauskaite 2006). The problem of corruption is one of the most acute in Lithuania as compared to other EU states.

For example, according to surveys conducted in 2014, somewhat less than 1 percent of the respondents in Denmark, Finland, Luxembourg and Sweden claimed that bribe was expected from them, and the number of people thinking that corruption is widely spread (correspondingly, 20 percent, 29 percent, 42 percent, and 44 percent) is considerably less than the EU average.

Meanwhile, it is regrettable that Lithuania together with Croatia, the Czech Republic, Bulgaria, Romania, and Greece is attributed to the countries lagging behind “in the scores concerning perceptions and actual experience of corruption” (EU Anti-Corruption Report 2014). In this group of countries, between 6 percent and 29 percent of the respondents indicated that they were asked or expected to pay a bribe in the past years, whereas even 84 percent–99 percent of the residents expressed the opinion that corruption was widespread in their country.

It is also noteworthy that neighboring Latvia belongs to the group of the countries with the better results (together with Malta, Cyprus, and Ireland), the results of which do not diverge considerably from the EU average (EU Anti-Corruption Report 2014).

Such data evidence that fight against corruption in Lithuania was conducted in improper and inefficient ways. In the National Security Strategy (2012), corruption is claimed to be one of the main internal risk threats, which “undermines legitimate interests of individuals and the state, discredits the principle of the rule of law, diminishes the trust of citizens in democratic values, democratic authorities, and reduces the country’s attractiveness for foreign investors.”
One of the tasks indicated in the National Security Strategy is the implementation of complex measures in the fight against corruption and corruption prevention focused on enhancing transparency and responsibility in the public sector, publicity of the legislative process and decisions, elimination of unnecessary regulation, improvement of the mechanisms of investigation of corruption crimes and imposition of sanctions (Strategy p. 16.4.1). It is also notable that “fight against corruption traditionally rests on “three whales”: prosecution, corruption prevention, and anti-corruption education” (Palidauskaite 2005).

Already the National Program for Crime Prevention and Control (2003) emphasizes that corruption prevention and control are considered a priority direction, and the following tasks are set for it:

- to improve the system of public institutions fighting corruption and the anti-corruption legal base;
- to cut down the number of opportunities for administrative corruption by improving the anti-corruption legal base; it is necessary to draft professional ethics rules for servants and officials that would precisely regulate the behavior of servants taking into consideration the coordination of public and private interests;
- to strengthen the resistance of the state administration system, especially law-enforcement institutions;
- to raise the level of the anti-corruption education of the public, to involve the public in the struggle with corruption, to promote cooperation with public authorities in their anti-corruption activities;
- to raise the level of professionalism of public servants with regard to anti-corruption issues, to train them providing with information about the cause and consequences of corruption, efficient ways of fighting it;
- to seek transparency of the state, business and other important social and economic sectors;
- to improve legal acts regulating the dismissal of public servants from their public service position when public servants have done damage to the state interests by their illegitimate actions and when there are reasonable doubts as for their reliability and loyalty to the state because of their corruption and criminal relations.

It is noteworthy that some wordings of these tasks contain the programmed unsuccessful implementation of the tasks, since the implementation results of these tasks are difficult to be estimated. For example, the task wordings that it is necessary to strengthen the resistance of the law enforcement institutions to corruption and to involve the public in the struggle with corruption are too abstract, reminding general and matter-of-course goals rather than specific tasks, the implementation thereof could be assessed.

The basic legal act of the Republic of Lithuania regulating corruption prevention is the Republic of Lithuania Law on Prevention of Corruption (2002), which is sufficiently exhaustive or even meticulous. Article 3 of the Law envisages that the prevention of corruption shall be targeted at minimizing as much as possible its crippling effect on the development of economy, democracy, promoting social welfare, consolidating national security and improving the quality of provision of public services.

The tasks targeted at the prevention of corruption shall be disclosure and elimination of the causes of and conditions for corruption; deterrence of persons from the commission of crimes of corruption; setting of an adequate and effective mechanism of organization, implementation, oversight and control of corruption prevention through legal, institutional, economic and social measures; involvement of the public and public organizations in the prevention of corruption; promotion of transparency and openness in the provision of public services.

Ensuring a workable and efficient legal regulation in the prevention of corruption is also foreseen as a task for the prevention of corruption, even though this task is considered to be excessive and subject to elimination.

Article 5 indicates the corruption prevention measures, simultaneously making reference that such list is not final. Anti-corruption programs are pointed out among the most important.

It is assumptive, however, that such listing is erroneous since an anti-corruption program is not an anti-corruption measure but rather a legal instrument wherein such measures are foreseen. Article 7 of the Law regulates that anti-corruption programs may be of the national, sectoral, departmental or of other scope. In 2015, upon the approval of the new and, possibly, effective result-raising national anti-corruption program, it is presumptive.
that closer attention should be devoted to the drafting of sectoral programs. According to Article 12 of the Law, the corruption prevention shall be implemented by the Government, the Chief Institutional Ethics Commission, the Special Investigation Service, other state and municipal and non-governmental agencies. The functions of the Government shall be to ensure that the corruption prevention measures are implemented by the ministries and other subordinate agencies, to foresee the funds for their implementation, to develop the National Anti-Corruption Program and submit it for approval to the Seimas as well as to make proposals to the Seimas on the creation and improvement of the legal base (Article 13).

It is noteworthy that, presumably, one of the key functions of the Government – to ensure the coordination and cooperation of institutions involved in the anti-corruption activities – has not been reinforced in this article. The competence of the Chief Institutional Ethics Commission embraces analysis of ethical problems confronted by the public servants, submission of proposals concerning adoption and improvement of anti-corruption legislation, implementation of prevention measures together with other state or municipal agencies (Article 14). The functions of the Special Investigation Service (further the SIS) encompasses participation in drafting the National Anti-Corruption Program, submission of proposals as to the introduction and improvement of legislation; implementation of corruption prevention measures, participation in the Government’s discharge of its functions of coordination and supervision of the activities of state or municipal institutions in the field of corruption prevention (Article 15).

It is notable that the latter function has not been indicated in the Law as the function delegated to the Government.

Secondly, in defining the SIS functions, it is not emphasized that this institution also conducts pre-trial investigation of corruption-related criminal acts; therefore, it performs negative prevention as well. The SIS activities is also regulated in the special law (Republic of Lithuania Law on the Special Investigation Service 2000), where this institution is defined as a state law enforcement agency functioning on the statutory basis, accountable to the President of the Republic and the Seimas, which detects and investigates corruption-related crimes, develops and implements corruption prevention measures (Article 2). Article 7 of the Law indicates the SIS tasks that are quite abstract: to guard and protect society and the State from corruption, to conduct prevention and detection of corruption.

These tasks are given in more detail in Article 8 of the Law regulating thereof that the SIS is involved in carrying out criminal intelligence, conducting pre-trial investigation, cooperating with other law enforcement institutions, storing and analyzing the information about corruption and on this basis implementing corruption prevention and other measures, reporting, at least twice a year, and submitting proposals to the President and the Chairman of the Seimas.

Coming back to the Law on Prevention of Corruption, the provisions of Article 16 thereof regulating the rights of other state and municipal institutions and non-governmental agencies are not articulate even more. For example, inter alia it is indicated that these agencies shall be entitled to promptly eliminate breaches of the provisions of legal acts on corruption prevention and not, by act or omission, create conditions contributing to corruption-related criminal acts. Thus, in this case the duties of agencies are unreasonably named as the rights.

The Council of Europe’s Group of States against Corruption (further the GRECO) in its evaluation report on Lithuania (2014) has claimed that the main problem of poor results in the fight against corruption is not the legal framework but poor coordination of the activities of responsible institutions. The report emphasizes that “the authorities should not aim at adopting new legal acts or amending the existing legal acts but aim at ensuring that the existing ones are well understood and implemented.” The report also specifies that the activities of the law enforcement institutions is perceived as a closed institution and there is mistrust of residents. It is also highlighted that not enough efforts in Lithuania are given to implementing legal acts; therefore, “anti-corruption rules are often considered just as additional bureaucracy that must be followed giving their purpose a second thought or as rules which can simply be circumvented.”
Lithuania also lacks smoothly operating mechanisms to ensure transparency and independence of some institutions, for instance, of courts. The GRECO key recommendation for improving corruption-related situation in Lithuania is to strengthen and develop the institutional cooperation.

In the summer of 2015, a big step, indeed, was taken as regards the improvement of the situation – the Republic of Lithuania National Anti-corruption Program for 2015–2025 was adopted and the Inter-institutional Action Plan for 2015–2019 was approved.

This exhaustive and comprehensive instrument indicates the key goal: to ensure the long-term, efficient and targeted corruption prevention and control system; it is geared towards the reduction and elimination of corruption conditions and risks, as well as corruption risk management and assuming of liability for corruption-related offences.

In the program inter alia the corruption relations with a too big scope of bureaucracy and regulation, absence of discretion of decisions and accountability balance are emphasized.

The program sets out priority areas where the prevalence of corruption risk is greatest, namely:
- political activities and legislation;
- activities of judicial and law enforcement authorities;
- public procurement;
- health care and social protection;
- spatial planning, public construction supervision and waste management;
- supervision of the activities of economic entities; public administration, civil service and asset management.

It is notable that the drafting of the program has been greatly influenced by a survey conducted in 2014 “The Lithuanian Map of Corruption 2014” (Special Investigation Service) permitting the opportunity to identify the shortcomings and advantages of Lithuanian anti-corruption policy, to find out Lithuanian citizens’ attitudes to corruption, its forms, scope and efficiency of prevention measures.

The program also provides a detailed analysis of most frequent corruption manifestations in different sectors and evaluates their causality. An important gap in legal acts has been also emphasized that offences possessing the signs of a corruption-related criminal act, committed in the private sector, are not criminalized; therefore, it is expedient “to identify the criminalization adjustment of corruption in the public and private sector with the international and European Union obligations relating to corruption in the public and private sectors, undertaken by Lithuania, and to prepare the requisite draft legal acts and recommendations on practical application of norms” (Resolution No. 648 of the Government of the Republic of Lithuania of 17 June 2015).

It is also important to consider that the survey performed by the Law Institute of Lithuania “Corruption in the Private Sector” (Special Investigation Service) has indicated that the generalizing normative concept of corruption in the private sector as well as the direct official statistics on this phenomena does not exist, and nobody accumulates systematized data thereof.

It is assumptive that corruption in the private sector correlates with corruption manifestations in the public sector. The program also indicates its strategic goal – to reduce a scope of corruption and to increase transparency and openness in the public and private sectors. Reference to the specific indicators to be achieved is to be assessed as very positive.¹

¹ For example, the following targets are indicated that Lithuania’s Corruption Perceptions Index in 2025 should be not less than 70 points (Index in 2014: 58 points); in 2025, the Lithuanian respondents (general population, businessmen and civil servants) stating that a bribe is part of a solution should be less than 33 percent (in 2014, it was 35 percent, out of which 69 percent were general population, 43 percent company managers and 54 percent civil servants); and, in 2025, the Lithuanian respondents (general population, company managers and civil servants) saying that they have given a bribe over the last 5 years should be less than 10 percent (in 2014, it was 31 percent, out of which 45 percent were general population, 14 percent company managers and 35 percent civil servants).
Tasks are also properly detailed; they embrace specifically defined problem areas and overcoming of certain problems. A separate chapter is dedicated to ensuring the program implementation, whereof it is noted that the program implementation is organized and controlled by the Government, with the participation of the SIS (the latter also fixes and evaluates the effectiveness of the program results).

The program shall be implemented by the ministries, the Special Investigation Service, the Prosecutor’s General Office of the Republic of Lithuania, the Public Procurement Agency, the Chief Institutional Ethics Commission, the Central Electoral Commission of the Republic of Lithuania, other state and municipal institutions and agencies within their respective powers.

Non-government organizations, the public groups concerned, and private sector subjects may contribute with their actions to the program implementation, achievement of its goals and tasks. The process of monitoring and assessing the program results has also been regulated specifically.

In summary it should be said that upon assessment of the residents’ survey data and other statistical indicators, the conclusion is to be made that a problem of corruption has been acute in Lithuania. Even though in the national law of Lithuania corruption control and prevention is regulated comparatively meticulously, the GRECO in its evaluation report on Lithuania has claimed that Lithuania faces the problems of not adjustment of institutional activities, a low level of cooperation, and not intensive societal involvement. In the summer of 2015, a big step, indeed, was taken as regards the improvement of the situation – the Republic of Lithuania National Anti-Corruption Program for 2015–2025 was adopted and the inter-institutional action plan for 2015–2019 was approved. These documents give the detailed evaluation of factors affecting corruption in different sectors; the opportunities of their overcoming are discussed, and a detailed and complex statistical data analysis is performed.

The tasks of the program are also properly detailed, cover the specifically defined problem areas and the overcoming opportunities thereof; explicit and specific indicators of result evaluation are identified, and the program effectiveness monitoring procedure is regulated.

It should be assumptive that the new National Anti-Corruption Program of the Republic of Lithuania will help greatly to improve the corruption control and prevention results.

It should be also emphasized that one of the most important proposals formulated in the program is to criminalize corruption in the private sector.

4. Prevention of trafficking in human beings

The National Program for Crime Prevention and Control (2003) defines human trafficking as “a form of organized crime of international character perceived by the world community as a form of slavery and considered one of the major violations of human rights.”

It is noteworthy that trafficking in human beings most often happens between fellow countries or conditionally close to home countries (Global Report on Trafficking in Persons, 2016).

Due to the geopolitical position of Lithuania, human trafficking is also a relevant problem (especially as a transit country of human trafficking), given the opportunity exists by the Schengen area to cross-border the countries without restriction. Therefore, 61 percent of human trafficking victims in Europe originate from the Balkans and the former Soviet Union states, inter alia Lithuania (The Globalization of Crime, 2010).

As highlighted in the Public Security Development Program for 2015–2025, this multidimensional phenomenon requires coordinated national and international multisectoral and multiagency measures, their effectiveness to be ensured by the coordination mechanism in the fight against human trafficking, especially focusing on
risk groups (e.g., children’s home inmates, residents in the localities with a high level of unemployment, etc.) (Republic of Lithuania Seimas Resolution No. XII-1682, 2015).

As R. Sirgedienė (2014) noted in her doctoral dissertation, “the fight against human trafficking of such multidimensional origin requires efforts of multiagency actors of public governance (administration), private and third, or NGOs, sectors (related to elimination of poverty and social protection, education and science, employment, gender equality, protection of human rights and employees rights, migration, fight against organized crime and corruption, etc.)”.

According to R. Sirgedienė (2014), the administrative legal regulation methods, most often used in the field of coordination of the fight against trafficking in human beings, are an order, injunction and discretion, with the complementary methods also used at times – motivation and recommendations.

Focus should be placed on the fact that in the coordination of the fight against human trafficking not only the imperative method but also the dispositive method, making it possible to select the alternative behavior variants, may be applied.

In addition, the modernization of the fight against human trafficking shall induce signing of administrative agreements, thus developing both vertical and horizontal relations in the field of public administration.

Since institutions responsible for the fight against human trafficking are numerous, successful prevention of this criminal process is greatly impacted by the proper coordination of institutional activities. Alike in other spheres, the lacking institutional cooperation skills, the problem of reticence, and the conditionally weak NGO sector are faced here.

To tackle this comprehensive problem of human trafficking in a proper manner, assistance to victims and their protection measures shall be integrated and complement each other, not limiting to the criminalization of an act and determination of the strict criminal liability. Of special importance is to sign cooperation agreements, to develop strategies, programs and plans, whereby national coordinators would be appointed, coordination groups and commissions formed (Sirgedienė 2014).

These measures and their importance are regulated in the recommendations by the specialists from the International Centre for Migration Policy Development (Sirgedienė 2012). In the countries where coordinators are appointed for the fight against human trafficking, they commonly are “high-ranked civil servants with sufficient power to effectively popularize national strategies in the fight against human trafficking and to coordinate efforts in the fight against human trafficking who could devote their entire working time for this activity” (Sirgediene 2014). Special institutions may be also established to coordinate the fight against human trafficking.

As an example could serve the multiagency group, organized by the Austrian Federal Government in 2004, its key functions being to develop a national plan for the fight against trafficking in human beings, to perform monitoring of its implementation and to make reporting. Analogous commissions operate not only in Western Europe, but also in East European countries, for example, in Bulgaria, where in 2004 a national commission for the fight against human trafficking was set up. (Sirgediene 2014).

In Latvia, programs for the prevention of human trafficking are also drafted with an aim of situational research analysis, development of the legal acts in the fight against human trafficking, and implementation prevention measures. The Ministry of the Interior is responsible for implementing the major part of tasks. A national multiagency coordination group for implementing the human trafficking prevention program was set up by Decree No. 77 of the Prime Minister of 3 March 2010, its competence including the coordination of the activities of institutions and organizations and information exchange (Sirgediene 2014). The Cabinet of Ministers of the Republic of Latvia on 14 January 2014 approved the National Strategy for Prevention of Trafficking in Human Beings 2014–2020, drafted by the Ministry of the Interior, envisaging 39 measures for ensuring the efficient fight against human trafficking, in-
In summary, upon surveying Lithuania’s situation and experience of other countries, one has arrived at a conclusion that it is expedient to enforce the regulation of the fight against trafficking in human beings in a special legal act regulating thereof exhaustively institutions and positions of those in charge of coordination. Likewise, on the example of Latvia, it is expedient to draft programs or strategies, covering a specific period, which by their type and quality would be comparable to the National Anti-Corruption Program, discussed in the previous sub-topic.

5. Prevention of domestic violence

In 2011, upon the adoption of the Law on Protection against Domestic Violence (2011) whereby the objective was set – to protect persons effectively against domestic violence, which, due to damage caused to society, is attributable to the acts of public importance, to promptly react to arising threats, to undertake prevention measures, to apply protection measures and to provide appropriate assistance – control over domestic violence has been strengthened effectively. Article 3 of this Law regulates that protection against domestic violence shall be implemented in compliance with the following principles: cooperation, participation, comprehensiveness, accessibility and quality, solidarity, appropriateness, coordination, legality, protection of human rights and freedoms, proportionality, humanity, justice, efficiency, impartiality and effectiveness.

In accordance with Article 4 of the Law, prevention measures shall be implemented in accordance with the programs developed by the Government and the institutions authorized by it. Prevention measures carried out by the state and municipal institutions, agencies and non-governmental organizations have also been specified. Article 5 contains enforced measures for ensuring the protection of a victim of violence (inter alia moving out of the perpetrator of violence and the obligation for the perpetrator of violence not to approach the victim of violence, not to communicate and not to seek contact therewith), which may be applied in a pre-trial investigation as well. Article 6 regulates application of measures ensuring the protection of a victim of violence, obligating police officers to take immediate measures and to react to an incident of domestic violence.

Moreover, the Law regulates functions and duties of police officers when preventing domestic violence; the system of management and organization of assistance is enforced.

Hence, it is possible to claim that the appropriate legal framework currently exists in Lithuania, of the three models for regulation of domestic violence – equal protection, general regulation in the criminal code and better protection (Vaige 2013) – the latter was chosen.

Such protection is substantiated by the fact that “violence exists in the family which should create the conditions for integrity and safety protection” (...) by the provision that family violence is an especially harmful act which makes an attempt on such legal good as life, safety, property, family honor; hence, under such conditions, under which the individual has a special right to expect protection against infringement on these goods” (Michailovič 2012). Moreover, of special importance was an amendment to the Criminal Code of the Republic of Lithuania when, according to Article 140 Part 2, a person shall be held liable irrespective of the will of the victim.

Previously, however, due to minor health impairments, irrespective whether they resulted from domestic violence, pre-trial investigation has been initiated only upon receipt of the victimized person’s complaint. This made it difficult to hold the perpetrator liable (if the victim took back his/her application, an investigation was terminated), as well as predetermined a negative and negligent approach of police officers to victims of domestic violence which called the police with an intention to frighten and warn him rather than actually to hold him liable. Such specificity and problem of domestic violence was more than once emphasized in mass media
In the present legal regulation this gap has been remedied; therefore, officers must start an investigation irrespective of the will of the victim. Even though such change should be estimated as very positive in consideration of the Public Security Development Program for 2015–2025, implementation of the Law on Protection against Domestic Violence of the Republic of Lithuania revealed an especially high latency of domestic violence. In 2013, the police recorded 21615 notices on the possible domestic violence (by 18 percent more than in 2012) and initiated 10015 pre-trial investigations (by 32 percent more than in 2012). Such and other data show that the problem of domestic violence in Lithuania has been yet very acute.

It is assumptive that domestic violence control could be strengthened not only by the comprehensive assistance to victims and perpetrators but also by the additional training of police officers.

In summary it should be said that in 2011, upon the adoption of the Law on Protection against Domestic Violence with an aim at protecting persons against domestic violence, which, due to damage caused to society, is attributable to the acts of public importance, promptly responding to arising threats, undertaking prevention measures, applying protection measures and providing appropriate assistance, control over domestic violence has been strengthened effectively.

This Law regulates in detail the system of protection against domestic violence based on the following principles: cooperation, participation, comprehensiveness, accessibility and quality, solidarity, appropriateness, coordination, legality, protection of human rights and freedoms, proportionality, humanity, justice, efficiency, impartiality and effectiveness; the Criminal Code has been changed accordingly upon enforcement of the provision to be positively estimated that the perpetrator shall be held liable irrespective of the will of the victim.

After the adoption of the Law on Protection against Domestic Violence, a regulatory model of better protection against domestic violence was embedded in the national law. Nonetheless, latency of domestic violence has remained yet comparatively high.

For this reason, adequate attention should be devoted not only to the comprehensive assistance to the victims of violence but also to the qualification improvement of law enforcement officers, focusing on psychological aspects in the work with the victims of domestic violence.

Conclusions

Creating new crime prevention and control models consists of separate stages. The first stage consists of problem identification and formulation. The problem is to be formulated precisely and specifically, its scope and problematic phenomenon stability described, thus avoiding the effect of “diffusion” of prevention measures and their impact. The second stage identifies the program objectives and tasks; the implementation thereof would be possible to measure. The third stage is the selection of prevention measures. Prevention activity participants should be given opportunity to apply more prevention measures, simultaneously raising the qualification of prevention subjects. The fourth stage is the identification of the structure of program execution and management.

The efficiency of the prevention program is to be assessed by examination and formulation of the problem, choice of targets and tasks, analysis of negative consequences, study of alternative problem-solving ways; analysis of factors; choice of prevention measures, choice of result assessment indicators, formulation of the expected results; efficiency control measures, appraisal and description of the results obtained.

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2 According to Eurostat data, in 2011, the number of homicide per 100 000 residents was 6.6, the EU average was 1.2. According to the Eurobarometer data, 48 percent residents indicated that they personally know at least one woman who experienced any type of violence, this indicator by almost twice exceeding the EU indicator (25 percent). According to the poll of 2013, 45 percent indicated that the most important problem of public security is violent crimes.
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WORLD CHALLENGES AND ECONOMICS OF GEORGIA

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Abstract. The phenomenon of globalization is wide, changeable and versatile. Therefore, there are a lot of different and contradictory opinions about its historical nature, driving motives and assessment of its influence on the various spheres of the social life. As it is widely known, globalization is the integrity of the processes having place in the world, inspiring people to acquire the common quality and character and draw near each other. The problem of its influence especially on the small countries doesn’t lose its topicality even today. Facts, when after the global integration a country with a small and open economics improves its economic conditions and becomes active on the international stage, due to the development of the communication and education systems, is a reflection of the fact, that globalization has a positive impact on such countries and helps them not to lag behind the world progress.

Keywords: globalization, challenges, small countries.

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JEL codes: O10

1. Introduction

In the Western literature the core idea of determination of globalization is the fact that share of the deal made between the populations of different countries is growing rapidly (Grubicka.; Matuska 2015; Korsakienë et al. 2015; Razminienë, Tvaronavičienë 2017)

According to the definition given by the UN (World Invesment Report, 1997), globalization of economics means the process of formation of the corresponding organizational structures and movement of increasing flow of goods and service lying beyond the national borders, for appropriate management of the growing net of international economic deals.

According to Sh. Yusuf and J. Stiglitz globalization is a close integration with the increasing flow of trade, capital and ideas, as a result of formation of the international manufacture nets under the influence of the investment activities of the transnational corporations. (Yusuf, Stiglitz, 2000).

In R. Harris’s (Harris, 1993) opinion globalization is the increasing internationalization of goods, service sphere, distribution and marketing. In modern political literature various researchers give to the globalization
process different interpretations: Martin Albrow (Albrow, 1990) – globalization covers all the processes, which will turn people into the one, global society…English sociologist Anthony Giddens (Giddens, 2002) – It is intensification of the social relations, which connects the remote places in that way, when events are developed by the events taking place thousands of miles away and vice versa… German scientist Emanuel Richter (Richter, 2010) - It is a global net, which “soldered” earlier isolated and scattered societies to one interrelated world… American political expert Robert Cox - Globalization means internalization of the product, new international distribution of labor, new migration movement from the South to the North, new opposed environment, which speeds up all the processes and the last, internationalization of the state, making them trivial agents of the universe (Bayls, Smith, 2001).

We think, this small circle of the scientists will be enough, as in our opinion, this process, where the social ties are separated from the territorially, geography, so that the life of mankind goes on in one, integral, and inseparable space, when the national states and their sovereignty are covered by the transnational factors and subdue to it (Bek, 2001). Despite, globalists think that not a single state can lock itself in its shell and be able to separate from others, as the world society implies unity of social relations, not being defined by the national state policy. In my opinion, national state, national economics and culture or consciousness, are considered of the highest value. That’s why we are to mitigate opposition and resistance and assign a specific meaning to the permanent efforts of our ancestors to maintain the nationhood.

2. The Priorities of Country Existence

One cannot imagine existence of a state without a national ideology and priorities. French Philosopher Destutt de Tracy (1754-1853) was the first to use the word “ideology” (De Tracy, 2008), as a science about the ideas, though in the 19th century, Carl Marx considered ideology as the unity of the “ruling class”, which implies division into classes and inevitability of exploitation. In the 20th century, scientist of the liberal orientation presented ideology as means of social control, which was to guarantee social consent and submission, therefore fascism and communisms were regarded as two variants of the narrow thinking, not allowing the existence of the different opinion. On this background, liberalism, conservatism, and democratic socialism were perceived, as “open” systems, allowing and requesting free thinking, critics and opposition, but instead of ideology they chose pragmatism, tradition and history. Marx insisted that his ideas were of ideological and not scientific character. Liberals also refused to include their philosophy into the world ideology; as for conservatives they, even today are on the pragmatic and not ideological position in politics. That is the reason, why nowadays doesn’t exist neutral and fully acceptable classification and therefore it is necessary to set it free from the idea, that ideology can be good or bad, lie or truth, liberating or subduing. We believe, that ideology can be explained, as the integrity of ideas, managing or approving political deeds in this or that form.

Simultaneously with extension of the process of globalization, ethnic nationalism flared up, which is blamed in brutal ethno conflicts creating the threat to the territorial integrity of the Nation-State, weakened them, resulting in the strengthening of opposition of the population against the State and evoked feeling of a new ethnical solidarity. People lost their orienting point and when the old habits and traditions were attacked, the Christian moral was practically erased from the sphere of actions and an unbelievable layer emerged from the depths, faceless, one integral unit, honest and dishonest at one and the same time.

A new type of moral was created. Bragging with the illegally grabbed reaches and unnatural segmentation of the society into the caste became an inspirational model. All the mentioned above prevents successful functioning of democracy.

3. Globalization and Small Countries

As it is widely known, globalization is the integrity of the processes having place in the world, inspiring people to acquire the common quality and character and draw near each other. The problem of its influence especially on the small countries doesn’t lose its topicality even today. Facts, when after the global integration a country
with a small and open economics improves its economic conditions and becomes active on the international stage, due to the development of the communication and education systems, is a reflection of the fact, that globalization has a positive impact on such countries and helps them not to lag behind the world progress. If such sort of country wants to claim a place on the international arena, it has to concentrate on the spheres, such as economics and education.

Globalization conditions the close connection of countries and countries with small and open economics have the chance of being included into the various global educational programs, e.g. the student exchange program „ERASMUS”+, being funded by the European Union, which gives to students from Georgia, Armenia and other countries a chance to study in the leading universities of Europe, which in its turn gives them the greatest experience for the future career progress.

Growth of the number of international governmental and grass-root organizations is the accompanying process of globalization. Existence of such organizations, are the guarantee of including of the many, small states in the significant programs and arrangements, which promotes peace in the world, helps develop humanism and enhance closeness of different cultures. One of the brilliant examples, is the peacemaking program of ISAF in Afghanistan, uniting 51 countries, among them those which are the members of NATO and those which are not members of NATO (Georgia as well). Within this program approximately 130000 military personnel took part and among them Georgian soldiers as well. The number of Georgian soldiers was quite large – 885 according to the latest information. (NATO static aspects, 2015).

Representatives of the school of realism come to the agreement, that “ a small country from the military-political point of view is weak and cannot make provision of its own national interests independently”(Rondeli 2006). Thus, involvement of the small states in the programs like ISAF guarantees contribution to the world peace, retraining of the human resources and process of development of the military technology; all this will increase the defense ability with the aim of national protection of national interests.

4. Globalization Features

Among the positive characteristic features of globalization, are present economic relations of the world and free trade phenomenon. Free trade enables different countries to produce goods and service for the markets without any issues. Taking into consideration the fact, that not a single country and especially the small one is able to create a full-fledge industrial complex, the support of various institutions or financial one is necessary to them. Namely, such kind of support from the multinational manufacturers and partner states, not to say anything about the adaptation to the global shifts worked wonders of the “small Singapore” - and due to the sound economic policy, its annual financial growth reached 7% according to the data of 2014, which in reality is a great index (World Bank, 2015).

We mustn’t forget Hong-Kong, which in 2011-2013 became the unit having the most globalized economics, being the first in the world rating in the categories of technological innovations and ideas, capital transactions and cultural exchange (SCMP, 2013).

In spite of the above mentioned positive influence, the general idea is, that globalization on the contrary, creates a threat to the small countries, as it is directed towards the uniformity and standardization of mode of life, which in its turn means revaluation of the national value orientation system. In reality, exploiting of the global process for their personal benefit will help the small countries to maintain their singularity and uniquiness and become popular. The best example is the organization for education, science and culture of UN (UNESCO), the main purpose of which is protection of the cultural heritage of the world and variety in the epoch of globalization. From the year of 2003 the organization ratified the convention (UNESCO, 2015), which guarantess protection of the non-material heritage of the member states ( among them Georgia, Armenia, Azerbaijan, Ghana, Djibouti and others), such as dances, songs, popular art, rituals, folklore, which together with the architectural monuments is an important part of the culture.
It should be said, that globalization is an inconvertible process and is continuing its development. From approximation with the Western democratic spaces, small countries greatly benefit. Globalization, analyzed and viewed from the social-economic or the political aspect, is the best way of obtaining a competitive factor status in the international system (Travkina, 2015). According to Jan Scholte’s explanation - “Globalization denotes the processes, with the help of which social relations are not prevented neither by distance nor by the borders” (Scholte, Jan Aart, 2005). It is the indicator of trade and investments and increase of interrelation of the countries, free circulation of capital and formation of the common market. As for the rapid exchange of the modern management and marketing development, it enables small countries to become adequate members of the economically strong world. Globalization also ensures intense involvement of the representatives of small countries in the global training programs, working towards the increase of the number of the future qualified staff and the quality of service. It is a certain guarantee of security for small countries, as integration into the different transnational corporations or alliances often implies loyalty to the following principles: “One for all and all for one”. As for the negative side of globalization - it is cultural assimilation, but preservation of cultural originality and its elements is the prerogative of the nation, its strength and clever policy. This will help a small country not to lose its identity in the global world, but to make a worthy input into the world heritage. For the countries, which have small territory and are not densely populated integration with the global, international markets is essential. It enables a country, to extend further its physical borders and sell its production not only among its own numerically insignificant population.

5. Globalization Index

In the index of economic globalization the countries of high economics are not on the leading positions, though in the mentioned countries income per person is high. It can be explained, by the fact that for their economic development high level of globalization is not needed, as they have a vast inner market and inner capital of large value. At the same time, we would never find out a small country, where income per capita is high and simultaneously it has a low position according to the economic globalization index. International trade, foreign capital and labor force migration became a must for the development of small, natural resource poor countries. According to the economic globalization Georgia occupies the 19th place, but according to the level of globalization it is on the 63th place. We have to stress the fact, that the index of globalization of the year of 2015 is based on the data of the year of 2012.

According to the level of economic globalization Singapore holds the first place with 95.7 points (The highest point os 100). Ireland holds the second place with 92.6 points, on the third position is Luxembourg with 91.1 points. Then in the list come the countries having the developed economics. Georgia is on the 19th place (81 points). The place of Georgia is paradoxical. According to the data of the year of 2014 average annual revenue per person in Georgia equals 3700 USD. In the given index before the 19th place (Georgia) stands Mauritius with the lowest revenue of 10 5000 USD per person. Countries having income lower than Georgia occupy the place below the mark of 50 (World Bank, 2015).

19th place of Georgia was conditioned by the liberal policy of the international trade and possibility of the free inflow of the foreign capital. High position of Georgia is the reflection of the prospect of economic development and not of the achieved level of development.

A rapid increase in the index of globalization of Georgia started from the year of 2006, being a result of the reform of the years of 2004-2007. In the given years the foundation was laid to the present business environment of Georgia, which came through the war, economic crisis, political crisis and permanent Russian aggression. The above mentioned challenges were added to the problems existing in the sphere of court system and defense of the right on the private property. The development of Georgian economics on the background of the above mentioned problems is amazing and paradoxical; The truth is that, the growth of the economics of Georgia slowed down a bit in recent years (2013-2015), though in average it reaches the 4% mark (Kakulia, 2016).
6. Globalization and economical risks

In spite of the above mentioned, we have to mark, that the rapid globalization brought new threats, such as: nuclear contraband, transnational organized crime, cybercrime, trade of the organs of a human body, laundering of the money (Gasparieniene et al., 2016; Teivåns-Treinovskis, Amosova, 2016; Samašonok et al., 2016; Kabát et al., 2017; Teivåns-Treinovskis et al., 2016; Apsītis et al., 2016).

The first publications about the new threats appeared in the 1980-ies; from the 1990-ies the dangerous results of the “nontraditional” threats manifested themselves in full. Traditionally, investigations and researches about the security matters were analyzed in connection with the national state, being considered the chief provider of the security. Civil society was presented as a passive object. Traditional concepts of security were concentrated on the geopolitics, military power, foreign policy of the national states. As for the civil society organizations, business and local organs of authorities were given an insignificant role.

In 1990, the Western political literature started to reconsider the traditional approaches of the security. In developed and developing countries, traditional threats are considered to be the problems in the economic growth, poverty and development and not the military blocks and their balance and super states. It conditioned widening of the concept of national security in two directions: the first, analyses of the interalation of the global, regional, local problems and second, putting emphasis on the relations between civil groups and people. Theoretically, widening of the conception of security complicated comprehension of the fact, what is the modern national security and what are its priorities in the new epoch after the end of the cold war.

Modern national security maintains shifting of the accents from the military security to the civil security. In this case, togethere with the state it involves civil organizations, as the providers of the security and implies different forms of struggle with the organized crime and corruption. In other words, struggle with the organized crime and corruption is the matter of the sphere of the security of the civil society. It should be mentioned, that together with the variability of the threats, the priorities of the security permanently change.

In conditions of the increasing globalization of the international economics, organized crime is one of the main “new” threats to the national and international economic security. Global organized crime obtains stronger impact on the international financial net and national economics and connection between them is also growing.

The fact, that criminals are able to find shelter in foreign countries and hide their illegal profit abroad impede work of the legal organs, as well as control of the financial flow, checking of the documentation and detaining of the perpetrators. A great part of the revenue from taxes doesn’t replenish the budget of the national state due to the laundering of the money by the organized criminal groupings.

Fear towards the organized crime gives rise to the distrust, that democratic political institutions are able to cope successfully with the crime and political radicalism and gain the support of the strict, antidemocratic politics.

Experience of Sweden is interesting from the security point of view. Study of the experience of the civic security of Sweden and experience of cooperation between Scandinavian States and States of the Baltic region taking into account Russian threat, helped to better considering of the security challenges having place in Georgia and the region of the Caucasus. It was especially useful for analyzing why the security system was not effective in Georgia in settling the conflict with the Abkhazians and Ossetians and during the war of the year of 2008 with Russia (Kvaratskhelia 2011).

The system of civic security of Sweden, is based on the mild power policy, when the system of civic security of Georgia is based on the rigid power and was characterized by the traditional cold war time militarist approaches. In order for the increase of effectiveness of the security system of Georgia, more attention should be paid to the non –traditional approaches and turning back of a human being and society to the security, civil safety and stronger elements of the mild policy is today of a paramount importance.
Conclusions

- National state, national economics and culture or consciousness, are considered of the highest value. That’s why we are to mitigate opposition and resistance and assign a specific meaning to the permanent efforts of our ancestors to maintain the nationhood.
- Ideology can be explained, as the integrity of ideas, managing or approving political deeds in this or that form.
- Globalization, analyzed and viewed from the social –economic or the political aspect, is the best way of obtaining a competitive factor status in the international system.
- Preservation of cultural originality and its elements is the prerogative of the nation, its strength and clever policy. This will help a small country not to lose its identity in the global world, but to make a worthy input into the world heritage.
- In order for the increase of effectiveness of the security system of Georgia, more attention should be paid to the non – traditional approaches and turning back of a human being and society to the security, civil safety and stronger elements of the mild policy is today of a paramount importance.

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PRECONDITIONS OF FINANCIAL SAFETY DURING LIFECYCLE: 
THE FINANCIAL LITERACY AND RETIREMENT PLANNING IN VIETNAM

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Abstract. This study was performed to evaluate and examine financial literacy and retirement planning in sector employment in Vietnam in the context of financial safety during lifecycle. In order to collect primary data, a questionnaire was designed and distributed to 257 employees in the public and private sectors in Ho Chi Minh City. The results of descriptive analysis indicated that those who work in the public sector have a higher percentage of correct answers to questions about financial literacy and knowledge of social insurance than that of employees in the private sector. The results of a linear probability model (LPM) and two-stage least squares (2SLS) regression show that financial knowledge and regular saving are significant factors that enhance retirement planning, whereas sector employment is insignificant to retirement planning. These findings should improve the knowledge of financial literacy, pensions and social insurance disseminated through retirement seminars and education programs for workers. More research, however, should be conducted on these topics in Vietnam.

Keywords: financial safety, financial literacy, retirement planning


JEL codes: L32, D14, D91

1. Introduction

When people shift from one stage to another in their life cycle, they carry with them what they earned in the previous stage. Retirement is a turning point, especially with regards to managing personal and family finances. In many developed countries, retirees are supported by a large number of official programs including govern-
ment welfare systems, private pensions, and personal savings accounts (Minh and Huu, 2016). However, in developing countries, their counterparts receive support mostly from family members or relatives, because many of them still cannot access other official financial services (World Bank 2004). In Vietnam, citizens can only access defined-benefits (DB) in the pension system. Normally, men retire at the age of 60 and women at 55, with at least 20 years of contributions. In addition, in order to increase its welfare system coverage, a voluntary insurance scheme was launched. However, its coverage rate is relatively low, and few participants take part in this scheme (OECD, 2013a). Vietnam has a population of 90 million, of which about 53 million (58%) are in the workforce (15 – 60 years old). In 2014, 21.7% of the total working population took part in the social insurance system. The majority of them work in formal sector, especially the public one (GSO, 2014).

In Vietnam, prior studies concentrating on elderly living conditions found that they still live in poverty, and other studies point out that few elderly have access to public pensions; the majority live on their families’ support (Le et al., 2005; MOLISA, 2005). Moreover, over the past decade, the number of dependent elderly continuously decreased, while the number of elderly who lived on their own or with other elderly kept increasing (Giang and Pfau, 2007a). Other previous studies in Vietnam, which examined elderly people and their households, contributed data about geographic population distribution, household structure, and family relationships in regard to financial assistance (Pfau and Giang, 2007a, b). Over the same period, some studies focused on the effects of welfare benefits, household expenses, and decisive factors in poverty (Evans et al., 2007; and Tran, 2007). However, these studies do not analyze and identify possible factors that could affect how people prepare for their retirement income in the future through financial planning. In order to fill this gap, it is necessary for researchers to do more in developing countries, like Vietnam.

Accordingly, this paper examines whether the labour workforce in developing countries such as Vietnam is sufficiently financially literate to manage their social insurance benefits and properly budget for the future, especially retirement. It also looks for differences in retirement planning and financial literacy between employees in the public sector and private sector. Finally, this paper discusses the effects of financial literacy and regular saving on retirement planning.

The paper has four more parts: a literature review, a description of method and data collection, empirical results, including a statistics analysis and regression model, and then conclusions and recommendations.

2. Literature review

Based on economic literature on retirement planning, this literature review focuses on how people prepare for and know about their retirement and results from empirical research related to financial literacy and retirement preparation in context of developed and developing countries.

Regarding to the framework of pension system, there are two main parts in the framework of pension systems: defined benefit (DB) and defined contribution (DC). The former part is designed to make sure that pensioners can obtain some absolute, minimum standard of living. The latter part is created to attain some standard of living in retirement in comparison with that when they are at work. Hence, many private pension funds have appeared, reformed and developed in developed countries (Czech, 2016; Chovancová & Hudcovský, 2016; Ząbkowicz, 2016; Sika et al. 2016; Bílý, Horváthová 2016).

Besides, the importance of the media is also considered. Computer and the internet network also affect the reception and decision of consumers (Cuichi et al., 2011; Samašonok et al., 2016; Raudeliūnienė et al., 2016; Prause, 2016; Grubicka, Matuska, 2015; Štitilis et al. 2017).

However, in the previous research, Clark, et al., (2010) found that employees of five large companies have limited knowledge about their pension plan as well as Social Security. Particularly, the majority of workers do not know what kind of pension and other provisions they are engaged. In addition to this, Lusardi and Mitchell (2006, 2007a) presented evidence that older employees lack knowledge of basic financial literacy and investment to make
important decisions in each stage in their life cycle. This shows that whether or not consumers have been equipped with sufficient financial knowledge and information to make efficient decisions in their plan for retirement.

According to literature from personal and pension finance, financial literacy plays an essential role in making informed financial decisions (van Rooij et al., 2011; Michailova et al., 2017; Njaramba et al., 2015; Kalyugina et al., 2015; Dubauskas, 2016; Bikas, Bikas, 2016).

Empirical studies into this field indicate that individuals with better knowledge of financial literacy contribute a lot to their financial well-being. This is because people good at financial literacy plan for retirement more often and there is also a positive correlation between individual’s wealth and portfolio allocations in later life (Almenberg & Dreber, 2015). In the research from 12 countries around the world, Lusardi & Mitchell (2011a, 2014) show that the majority of people have low levels of financial knowledge and lack financial planning.

More importantly, in some remarkable findings of Lusardi & Mitchell (2007b, 2010), part from confirming that there is the relationship between financial knowledge and plan for retirement in their future, the authors also detect the potential endogeneity problem when they assess the relationship between financial literacy and retirement planning by using OLS regression.

Regarding the areas of pension financial decision and retirement planning, so far most researches have been done in the US, and Australia (Dvorak & Hanley, 2010; Gallery et al., 2011) where their citizens have more options to participate in retirement plans such as defined contribution (DC) besides defined benefit (DB). In addition, besides expanding conservative instruments, some empirical research also consider long term investment in stock market as a part of pension system and non – state retirement insurance system (Chovancova & Arendas, 2015; Mykhaylo & Kateryna, 2014). This is really different from developing world, especially Vietnam. By contrast, while a few studies are available in this field in Vietnam, they have not considered financial knowledge factor and financial behaviour yet, but mainly focus on household savings, household welfare and shelter poverty (Le, 2014; Nguyen, et al., 2015). However, in more recent years, researchers in other developing countries have started concerning about financial literacy and financial behaviors. For example, Nguyen, (2016) found that commercial banks’ customers in Ho Chi Minh City in Vietnam have average level of basic financial literacy. The research in Malaysia of Mahdzan & Tabiani (2013) addressed the relationship between financial literacy and saving by using probit regression and proved that financial literacy has a significant positive association with savings. Another research in India of Agarwal, et al., (2015) evaluated financial literacy of a group of Indian people using on-line investment services and found that consumers who have financial literacy could plan their retirement better.

3. Methodology

The study is based on primary data, in which 340 questionnaires were sent to employees in the public and private sectors in Ho Chi Minh City which is located at in the southeastern region of Vietnam. It is a good place to collect data because Ho Chi Minh City is the biggest city in Vietnam and the majority of companies in the public and private sectors, especially small and medium ones are located here. Particularly, data was collected from 15 companies and organizations in public sector and 28 SMEs in private sector, 5 to 10 employees from each firm or organization. The data was assembled via telephone interviews and face-to-face interviews using paper-based questionnaires, in which 257 out of 340 questionnaires were valid for data analysis, amounting to 75.58%. The questionnaire consists of three main sections: (1) Basic financial literacy; (2) knowledge of pension and social insurance; and (3) demographic characteristics.

3.1 Measure the variables

Researcher codes dependent variables as binary variables to show whether or not an individual have a plan for their retirement (1 = Yes, 0 = No). Independent variables which are coded to represent financial literacy and social insurance are each coded as a binary variable (1 = Correct, 0 = Incorrect or do not know). This paper assesses financial literacy through basic financial and economic concept questions which were used in previous studies.
in many countries (Agarwal, *et al.*, 2015; Lusardi, 2006; Lusardi & Mitchell, 2011a). The overall measurement is based on the number of correct answers to questions. Responses could range from 0 to 3 and from 0 to 4 for financial literacy and social insurance respectively. Demographic characteristics are control variables of this study such as gender, age, and level of education, marital status, the number of children, income, and home ownership of respondents. All of them are dummy variables and they are also considered as independent variables of this study.

3.2 Objectives and hypothesis

Accordingly, the purpose of this paper is to find out new evidence on the case of Vietnam by considering the role of financial literacy and regular saving in retirement planning. Furthermore, we also explore how employees in the public sector and private sectors prepare for their pension plan. Therefore, the following hypotheses are proposed:

H1: *Financial literacy affects retirement planning in a positive way.*

H2: *There is a relationship between individual regular saving and retirement planning (+/-).*

H3: *Whether there is a correlation between retirement planning and sector employment.*

3.3 Multivariate Regression

This research uses linear probability model (LPM) which is estimated by OLS to test hypotheses 1 to 3. The authors also run two-stage least squares (2SLS) regression to overcome endogenous problems and avoid bias results. In 2SLS model, this research follows instrument variables proposed in previous study of Fornero and Monticone (2011). In addition, this study also uses Wu-Hausman test which is run to check endogeneity variable.

4. Results and discussion

4.1 Descriptive statistics analysis

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<tr>
<td>- Not yet</td>
<td>74</td>
<td>28.8</td>
</tr>
<tr>
<td>- Yes</td>
<td>183</td>
<td>71.2</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Single</td>
<td>87</td>
<td>33.9</td>
</tr>
<tr>
<td>- married</td>
<td>170</td>
<td>66.1</td>
</tr>
<tr>
<td>Retirement planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Non planner</td>
<td>150</td>
<td>58.4</td>
</tr>
<tr>
<td>- Planner</td>
<td>107</td>
<td>41.6</td>
</tr>
</tbody>
</table>

(Source: Researcher developed based on sample survey, 2017)
Table 1 shows general information of respondents in this research. Among 257 employees completing the survey, 60.7% of them are from the public sector and 39.3% from the private sector. The employees’ level of education gained by these participants is higher than that of general population in Vietnam because those who were selected are working for private firms or government organizations or public firms belonging to the government. About 75% of them are required to hold at least a diploma or bachelor degree, 7% having post graduate degree and the remaining percentage of employees with education level of high school. 54% of employees are under 35 years old, around 30% are from 35 to 50 age group and about 15% of employees are from over 50 to 60 years old. The percentage of employees who have participated in social insurance is around 71% and 29% has not participated yet. Finally, just over 58% of employees have planned for their retirement and the rest of this number have not planned for their retirement income. Now we move to table 2 with panels A and B, which provide information about what employees know and understand about the basic financial and economic concepts and knowledge of pension and social insurance information. In this part, this study also explores the differences in knowledge, retirement planning and social insurance contribution between employees in the public and private sectors in Vietnam.

Table 2. Distribution of responses to financial literacy and knowledge of pension and social insurance questions of employees in the public and private sectors

Panel A. Financial literacy of employees in the public and private sectors

<table>
<thead>
<tr>
<th>Financial literacy</th>
<th>Employees in the Private sector</th>
<th>Employees in the Public sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incorrect</td>
<td>Do not know</td>
</tr>
<tr>
<td>Interest question</td>
<td>39.70%</td>
<td>14.10%</td>
</tr>
<tr>
<td>Inflation question</td>
<td>10.30%</td>
<td>18.60%</td>
</tr>
<tr>
<td>Diversification question</td>
<td>18.60%</td>
<td>55.10%</td>
</tr>
<tr>
<td>Correct all 3 questions</td>
<td>83.30%</td>
<td>16.70%</td>
</tr>
</tbody>
</table>

(Source: Researcher developed based on sample survey, 2017)

Panel A of table 2 presents answers to interest compounding, inflation and risk diversification questions. It indicates that around 46%, 71% and 26% give a correct answer to questions related to financial literacy of employees in the private sector respectively while employees in the public sector have higher percentage of correct answers to these questions, with about 57%, 74% and 37%. Compared with the answers on other recent research in developing countries such as India, the result of Agarwal, et al., (2015) shows Indian respondents have higher basic financial knowledge than Vietnamese employees with 81%, 79% and 79% correctly answering interest compounding, inflation and risk diversification questions respectively. This could be explained with two following reasons. Firstly, the respondents in that research were selected with a high level of education and secondly, those respondents took part in personal financial advice and they also used the investment online of Investment Yogi. Therefore, it would be expected that they have basic knowledge and understanding of financial and economic concepts. However, the percentage of both Vietnamese employees and Indian investors online getting a correct answer to inflation question is similar. It is easy to understand because the economy of developing world is impacted by inflation more obviously than other indicators.

Panel B. Knowledge of pension and social insurance of employees in the public and private sectors

<table>
<thead>
<tr>
<th>Social Insurance (SI)</th>
<th>Employees in the Private sector</th>
<th>Employees in the Public sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incorrect</td>
<td>Do not know</td>
</tr>
<tr>
<td>Retired age question</td>
<td>18.6%</td>
<td>3.8%</td>
</tr>
<tr>
<td>The number of year of contribution to SI question</td>
<td>46.8%</td>
<td>9.0%</td>
</tr>
<tr>
<td>The payment policy question</td>
<td>29.5%</td>
<td>17.9%</td>
</tr>
<tr>
<td>Voluntary contribution to SI question</td>
<td>16.7%</td>
<td>23.7%</td>
</tr>
</tbody>
</table>

(Source: Researcher developed based on sample survey, 2017)
Panel B of table 2 provides information on aggregate performance of the four questions about how employees in the public and private sectors know and understand Social insurance policies. Surprisingly, in the private sector, the result shows that over 55% of employees do not know and answer incorrectly the question related to the number of years people have to contribute to social insurance. Similarly, nearly 50% do not know the correct answer to the question of payment policy for participants who do not take part in social insurance long enough. The last question is very important for knowledge of social insurance policy in Vietnam because according GSO, (2014) nearly 79% of the total working population did not take part in the social insurance system. Therefore, in case of employer do not buy social insurance for their employee, they can participate by themselves. However, Around 40% of employees in the private sector either do not know or understand this information improperly while more than 80% of employees in the public sector know clearly. This study discovered that most people who do not participate in social insurance are those who work for private sector and they also lack knowledge and information on social insurance compared with employees working in the public sector. This result suggests that policy makers and government should concern more about how to improve employees’ knowledge of social insurance, especially those working in the private sector.

Table 3. Financial literacy of planners and non-planners

<table>
<thead>
<tr>
<th></th>
<th>Planners</th>
<th>Non-planners</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest compounding question</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Correct</td>
<td>84.1%</td>
<td>26.0%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>- Incorrect/DK</td>
<td>15.9%</td>
<td>74.0%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Inflation question</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Correct</td>
<td>92.5%</td>
<td>58.0%</td>
<td></td>
</tr>
<tr>
<td>- Incorrect/DK</td>
<td>7.5%</td>
<td>42.0%</td>
<td></td>
</tr>
<tr>
<td>Risk diversification question</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Correct</td>
<td>56.1%</td>
<td>12.0%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>- Incorrect/DK</td>
<td>43.9%</td>
<td>88.0%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Correct all 3 questions</td>
<td>41.1%</td>
<td>1.3%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>N obs</td>
<td>257</td>
<td>257</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Researcher developed based on sample survey, 2017)

Table 3 shows financial knowledge of retirement planners and non-planners. The results prove that employees with higher level of financial literacy are associated with planning for their retirement (P<0.01). Particularly, 84% and 56.1% of employees who are planners correctly answer the interest compounding and risk diversification questions respectively while only 26% and 12% of employees who are non-planners answer these questions correctly respectively. In addition, many more planners answer correctly all 3 questions, 41.1% of planners compared with 1.3% of non-planners.

4.2 Regression analysis

Table 4 presents the results of regressions to assess the impact of financial literacy, knowledge of pension and social insurance and regular saving on retirement planning. The researcher uses linear probability model (LPM) which is estimated by OLS and then two-stage least squares (2SLS) regression is also exercised to overcome endogenous problems.

The result is showed in table 4. First of all, the first column shows there is a strong link between financial literacy and employees planning for their retirement. Particularly, giving one more right answer to the question on financial literacy, participants can raise their probability (36 percentage points) of retirement planning, which is akin to the result of recent studies (Boisclair et al., 2015; Lusardi and Mitchell, 2014). Likewise, employees can have a rise of 11 percentage points in probability if they save regularly. Therefore, there is a positive relationship between retirement planning and financial literacy as well as regular saving when socio-demographic personal characteristics including income, education, and home ownership, the number of the children, gender and age group are considered as control variables. Hence, the results support the first hypothesis and partly support the second hypothesis.
However, according to the analysis of this research, results do not support the third hypothesis of this study as there is not a statistically significant relationship between retirement planning and sector employment. Although sector employment of respondents is not reliably estimated with retirement planning, the coefficients show that employees in public sector are more likely to have retirement planning than those in private sector, an increase of 7.2 percentage points in probability.

To address the endogenous financial literacy variable, researcher performs 2SLS estimation, in which a set of instrument variables are used based on a previous study of Fornero and Monticone (2011). As a result, the second column also shows a positive correlation between financial literacy and retirement planning. This finding is similar to the results of other studies (Fornero & Monticone, 2011; Ricci & Caratelli, 2015). In addition, the author also do Wu-Hausman test with P-value <0.05, that rejects the null hypothesis as financial literacy variable is endogeneity variable. Furthermore, the F test is 12.9, higher than 10 so this result could suggest that these instruments are not weak.

Table 4. Multivariate analysis of retirement planning

<table>
<thead>
<tr>
<th>(LPM)</th>
<th>(2SLS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial literacy</td>
<td>.362 (0.02)***</td>
</tr>
<tr>
<td>Knowledge of Social insurance</td>
<td>-.019 (0.02)</td>
</tr>
<tr>
<td>Regular saving</td>
<td>.117 (0.05)**</td>
</tr>
<tr>
<td>Participation in social insurance</td>
<td>-.011 (0.06)</td>
</tr>
<tr>
<td>Employees in public sector</td>
<td>.072 (0.05)</td>
</tr>
<tr>
<td>Socio-demographic control variables</td>
<td>Yes</td>
</tr>
<tr>
<td>N obs.</td>
<td>257</td>
</tr>
<tr>
<td>Adj. R-Squared</td>
<td>0.55</td>
</tr>
<tr>
<td>F - test</td>
<td>36.13</td>
</tr>
<tr>
<td>Durbin (score) chi2(1)</td>
<td>4.59933 (p=0.0320)</td>
</tr>
<tr>
<td>Wu-Hausman F (1,237)</td>
<td>4.3187 (p=0.0388)</td>
</tr>
</tbody>
</table>

(Source: Researcher developed based on sample survey, 2017).

Notes: Robust standard errors in parentheses; ***p < 0.01; **p < 0.05; *p < 0.10.

5. Conclusions and recommendations

5.1 Conclusions

This paper examines whether differences in retirement planning and level of financial literacy between employees in the public sector and private sector. Moreover, this paper also verify the effects of financial literacy and regular saving on retirement planning of sector employment in Vietnam. The researchers report some significant findings.

First, regarding to retirement planning, a big difference in financial knowledge and knowledge of pension and social insurance exists between planners and non-planners. For example, under 30% of non-planners do not know and answer incorrectly questions about interest compounding and risk diversification while around 84% and 56% of planners answer correctly these questions respectively.

Second, in terms of sector employment, only 36.5% of employees in the private sector think about their retirement planning and this figure is quite lower than that of employees in the public sector with 50.5%. Turning to knowledge of pension and social insurance, nearly a half of employees in the private sector do not take a part in social insurance and they also lack information and knowledge of pension and social insurance. Particularly, more than 40% of these employees in the private sector incorrectly answer or do not know the questions about...
payment policy of social insurance and voluntary participation in social insurance.

Finally, this paper also contributes evidence of a positive relationship between retirement planning and financial literacy as well as regular saving after controlling social demographic characteristics. The researcher also uses two instrumental variables estimation to assess causal effects of financial knowledge on retirement planning. The results also indicate that retirement planning is strongly and positively impacted by financial literacy and regular saving. Particularly, employees with financial literacy have a higher propensity to make plan for their retirement and employees doing exercise saving regularly are more likely to plan their retirement.

5.2 Suggestions of Policy implications

According to the results, some suggestions can be made as follows: Firstly, government should concern about how to impart the information and knowledge of social insurance and the importance of pension income to Vietnamese people, especially those who are employees in the private sector because from the results, nearly 40 percent of them lack information and knowledge of pension and social insurance and they also do not take part in social insurance even though they can legally require their employers to buy social insurance for them.

Secondly, education system and financial institutions should think about short courses in financial education and retirement seminars for the whole community because according Duflo & Saez, (2004) personal behavior might be influenced by the receipt of information, hence retirement seminars and financial education programs are considered an effective way to improve financial knowledge and perceive saving plan for individual retirement.

Acknowledgement

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References


TRUST AND A SUSTAINABILITY OF THE MACROECONOMIC GROWTH INSIGHTS FROM DYNAMIC PERSPECTIVE

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Abstract. In last two decades, several authors have already proven the existence of positive relationship between generalized trust and macroeconomic growth and this paper queues up providing the evidence based on more recent data. An analysis of sustainability of the macroeconomic growth is also very important for prediction of economic development. However, the main aim of the paper is to analyse how the impact of trust on macroeconomic growth changes upon time, trying to find the answer how fast can changes in trust and other determinants be visible in changes in economic growth of countries. For this purpose, we introduced the dynamic aspect into the “Barro-type” regression growth models used by our predecessors. We can conclude, that trust is the most dynamic growth determinant, with the impact visible after 5 years. The paper also confirmed that the higher the initial level of GDP per capita (in terms of constancy of other variables in the model), the greater the decline in the growth rate. The high level of trust also allows better implementation of effective organizational innovation and knowledge transfer within the organization, since trust is also active through the channel of building the common good.

Keywords: Social Capital, Trust, Economic Growth, Empirical Study, Linear Regression Model, Panel Data


JEL Classification: O11, O47

1. Introduction

The traditional macroeconomic models of growth were based on “hard” inputs such as natural resources, physical capital, changes in labour force (Solow, 1956; Swan, 1956) and later on human capital (Barro, 1991). However, even at that time, the economists understood the importance of social interactions among market actors, so called “social capital”, for the functioning of the economy (Arrow, 1972). Francis Fukuyama (1995) supported the theory interconnecting moral and cultural characteristics of nations (and the level of trust) with the level of prosperity and wealth.

Social capital, trust and economic growth

Social capital positively affects the economic performance – in microeconomic perspective, moral and trustworthy social links reduces transaction costs, improves law contract enforcement or secure credit at the level
of individual investors (Knack and Keefer, 1997; Laužikas and Dailydaitė, 2015; Bacik et al. 2015; Fuschi and Tvaronavičienė, 2016) and in macroeconomic perspective, social cohesion reinforces the democratization of governance, increases efficiency, effectiveness and compliance with the ethical principles of public administration (Putnam, 1993; Gavurova et al. 2014) with positive effects on quality of economic measures taken (Víglero et al., 2016; Tvaronavičienė et al. 2015). According to Simionescu (2016) the increases in occupation and activity rate negatively influenced the real GDP rate while a better economic growth was achieved with higher unemployment rates.

Trust, representing the level of social capital in group of people (from community to nation), was perceived by Fukuyama (1995, p. 26) as an “expectation appearing in the community of common, honest, and cooperative behavior, based on commonly shared norms.” Dehley and Newton (2003) define trust as “faith to others that they will not harm you intentionally and knowingly if they can prevent it, and that they will take care of our interests.” Bhattacharya, Devinney and Pilluttla (1998) define the trust as an “expectation of positive (or negative) result that is based on the expected action of counterparty in the interaction characterized by uncertainty.” Other definitions can be found in works of Deutsch (1973), Cook and Wall (1980), Carnevale a Weschler (1992, p. 473), Grunig a Hon (1999, p. 3) and many others. Trust differs depending on the point of view. For the purpose of this paper trust will be distinguished according to the object of trust - to whom or to what is trusted. In this context, three forms of trust need to be taken into account – firstly, interpersonal (generalized) trust, secondly, so called “thick” trust, and finally institutional (systemic) trust (Cook and Gronke, 2001; Putnam, 2000, p.137; Newton, 1997, p. 578; Luhmann, 2000). Interpersonal (generalized) trust is rooted in daily interactions between people that do not know each other (Newton, 1997; Williams, 1988). On the contrary, so-called “thick” trust is rooted in closer links and ties within the family. Institutional trust (systemic trust) represents the trust in the institutions organizing / managing the society (Cook and Gronke, 2001).

According to Fukuyama (1995) or Putnam (1993), trust in the economy is a constant component of the business contracts creation and enforcement and it is an effective mean to reduce transaction costs at all levels of society relations - social, economic and political. Transaction costs are “costs associated with the bank, insurance and financial operations, wholesale and retail exchange, and legal and accounting services” (North, 1990, p.28). Trust is essential for a problematic delegation of power – the solving of the so-called “Principal Agent Problem” is easier in trustworthy societies (Notrh, 1990). Trust also enables the solving of “collective problems” (Whiteley, 2000, p. 451). Moreover, Whiteley (2000) and Putman (1995) points out that trust allows the coordination and cooperation to achieve common benefit, helps solving the dilemma of collective action and reduces the tendency to opportunism and egoism. In economic research, the trust is therefore understood as a “lubricant” smoothing the cooperation among economic agents in the economy / society, in other words, the higher level of trust increases the efficiency of cooperation among companies, between companies and customers, between public bodies and citizens (Škarpová and Grosová, 2015; Kac et al. 2016).

The level of trust, in cooperation with other determinants of economic development, positively influences the economic performance of community, city, region, or nation (Jantoń-Drozdowska and Majewska, 2015). As an evidence, several studies have been published to support this hypothesis (Knack a Keefer, 1997; Zak a Knack, 2001, Berggren et al., 2008; Roth, 2007). Within this paper, we would like to enrich the inherited knowledge by new dynamic insights. The trust in economic growth has an huge impact also on business environment. According to Belás et al. (2015) the optimism of economic entities is essential for the proper functioning of the whole economic system. This paper is focused on an analysis of the impact of trust on macroeconomic growth changes during the period from 1995 to 2008. The results are original, because of understanding the dynamics of influence of different economic growth determinants in “stable” economic times with the lowest systematic failures and external shocks.

2. Methodology, goals and hypotheses

The main aim of the paper is to analyse how the impact of trust on macroeconomic growth changes upon time, trying to find the answer how fast changes in trust and other determinants be visible in changes in economic growth of countries. The concept of research is thus based on a number of empirical studies based on the so-called Barro
endogenous growth model (Barro, 1991; Barro and Sala-i-Martin, 1992) of countries that considers the effects of the determinants of economic development to the growth rate of macroeconomic performance (the growth rate typically measured by gross domestic product per capita). The basis of the neoclassical growth model are the works of 2 authors: Solow (1956) and Swan (1956). Their model is based on the neoclassical production function, based on the law of diminishing marginal revenue by exogenous factors - saving, population growth and technological change; he pointed to the convergence of income per capita, which would mean the finality of living standards (Inglehart, 1997). The inability of the model to describe long-term economic development motivated many economists in the 80s of the 20th century to construct models of endogenous growth (Romer, 1986, 1990; Lucas, 1988; Barro, 1991; Mankiw, Romer and Weil, 1992; Barro and Sala-i-Martin, 2004). They work with a broader understanding of the concept of capital – comprising human capital, not covered by the law of diminishing revenues border. Barro (1991) identified a set of other variables that are essential for long-term economic growth. Adding more variables into the Barro model we call “Barro-type“ regression. We explore the following working hypothesis:

**Working hypothesis 1:** level of trust in the country has a positive effect on economic growth.

Testing this hypothesis will be made by using the regression model, the authors use in Berggren et al. (2008) and Roth (2006), which builds on the work of authors (Knack and Keefer 1997; Forbes 2000; Zak and Knack 2001) based on generally registered model, shown in Equation 1:

**Working task 1.1:** to quantify the impact of trust on economic growth in a regression model.

### Specification of the model

As part of the analysis a linear regression model will be used. It will have the following form, where \( i \) represents a specific country:

\[
y_{i,t_n} = \alpha_i + \beta_1 Y_{i,t_0} + \beta_2 I_{i,t_0} + \beta_3 H_{i,t_0} + \beta_4 T_{i,t_0} + \epsilon_i (1)
\]

where:

- \( y_{i,t_n} \) is the average annual growth of GDP per capita term, since \( t_0 \) to \( t_n \),
- \( Y_{i,t_0} \) is the term of the natural logarithms of income measured by the absolute level of GDP per capita in \( t_0 \),
- \( I_{i,t_0} \) is the term of physical capital measured by the price level of investment in \( t_0 \),
- \( H_{i,t_0} \) is a term of the human capital measured by Average Years of Schooling Attained of the working population in \( t_0 \),
- \( T_{i,t_0} \) is a term of the trust (social capital) measured by levels of trust to other people in \( t_0 \),
- \( \epsilon_i \) is the random error component.

We assume the following relationships in the model:

- \( Y_{i,t_0} \) – the level of initial macroeconomic performance has a negative relationship with a growth rate as shown by many empirical studies, when in the very long run growth rate of countries converge to the “equilibrium” value of the growth rate. Less developed countries are growing faster because of the existence of the law of declining border revenues from physical capital,
- \( I_{i,t_0} \) – we expect a negative correlation at the price level of investment with the growth rate, relatively expensive capital means that investments are less favorable – the expected profit is lower and so is the country less attractive to investors which adversely affects the level of investment in the country and has a negative impact on the growth rate,
- \( H_{i,t_0} \) – human capital is positively linked to the level of the growth rate, since the growth of education of the labor force increases the productivity. This stems from the work of Barro (1991), where the inclusion of hu-
man capital, not covered by the law on declining border revenues (as opposed to physical capital) into models of economic growth solved the problem of increasing living standards in rich countries, which should, according to the traditional model (Sollow, 1956; Swan, 1956) stagnate,

- $T_{i,t_0}$ - trust is positively linked to growth rates, by reducing transaction costs and more efficient solutions to collective social problems in the country. Reducing the transaction cost increases productivity and hence growth rates.

The data used in the regression are cross-cutting and have natural character – we abstract from the temporal aspect, and observations are collected for a sample of countries (for each of the countries in the sample, just one observation within a 5-year period), which is analogous to the thesis of Knack and Keefer (1997), Zak and Knack (2000), Roth (2006) and Berggren et al. (2008). Regression analysis, moreover, will be carried out on a sample of more recent data on the level of trust.

However, the main difference is the time adaptation of all variables entering the regression model of the measured level of trust. Previous work used explanatory variables at the beginning of the reporting period to the variable for the explanation of medium-term average rate of economic growth – the level of trust which is taken from any moment during the period where there is a possibility of the presence of reverse causality between growth and trust. Knack and Keefer (1997) and Zak and Knack (2000) advocated with the fact that trust highly correlated between decades (correlation coefficient of 0.9) and hence the level of trust is relatively stable. In our approach the level of trust is the central variable (for the irregular measurement) at time $t_0$ and other explanatory variables are matched with the variable – they are also measured in $t_0$. The exception is explained by the variable which is the average annual growth rate at various time intervals from $t_0$. The first step will be to construct a model explaining the average annual growth of GDP per capita for the 10-year time horizon (based on work Berggren et al., 2008), but then the results of the model on the short medium-term basis will be analyzed. The time window which the economic growth will be calculated for (the dependent variable) will thus change ($t_0$ to $t_1$, $t_0$ to $t_2$, ..., $t_0$ to $t_{12}$), independent variables will still be associated with the year $t_0$ – the year in which the data was measured on the level of trust. The approach is graphically presented in Figure 1 (below).

The proposed design of regression models with changing horizon, which the average annual growth rate of GDP per capita is calculated for, enable us to go beyond previous studies performed following additional work task.

**Working task 1.2:** verify the changes in the impact of trust on economic growth in a changing-term of economic growth.

### A. Approach of previous empirical studies

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<tbody>
<tr>
<td>Argentina</td>
<td>$t_0$</td>
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<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>$t_0$</td>
<td></td>
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<tr>
<td>Denmark</td>
<td>$t_0$</td>
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### B. Our approach

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<td>Denmark</td>
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</tbody>
</table>

**Legend**

- Black: Year of Trust data gathering
- Gray: Year of economic growth data gathering (from $t_0$ to $t_{10}$)
- $t_0$: Year of other independent variables gathering (except Trust)

Figure 1. Comparison of different approaches to data modelling – our approach vs. previous studies
3. The used data

As part of the analysis the following secondary data will be used to express the variables in the linear regression model. It is important to say, that our aim was to study the relationships on as stable economic period as possible. In this regard, the period from 1995 to 2008 was chosen (with most of the cases from 1996 to 2006). To understand the dynamics of influence of different economic growth determinants, the “stable” economic times with the lowest systematic failures or external shocks possible is desirable. Choosing this timeframe, our aim was to avoid the turbulent economic times after financial crisis beginning in 2008, what would definitely affect the elaborated analyses. Although, it might be very interesting to study how the economic crisis influenced the relationship between trust and economic growth, this is not the purpose of this paper.

Measurement of economic performance

The analysis will use real gross domestic product per capita, expressed in US dollars at constant 2005 prices for the measurement of economic performance of countries obtained by expenditure approach and converted using purchasing power parities. The part of income attributable per capita, constant prices and purchasing power parity conversion were selected for the purpose of carrying out the possibility of country comparison without affecting the size of the country and inflation, based on the real exchange rate. Data are secondary in nature and derived from the Penn World database, Table 7.1 (Heston et. Al, 2012) – item „rgdpcyh” – PPP Converted GDP Per Capita, Chain Series, at 2005 constant prices. This indicator is in contrast to the level of trust measured every year. In the linear regression model the average annual growth in gross domestic product per capita in the various annual intervals from $t_0$ will be used – year the level of trust was measured in.

The level of current income levels

Current income level of the country will be calculated through the natural logarithm of real gross domestic product per capita. As in the previous case, the nature of data is secondary, from Penn World database, Table 7.1 (Heston et al., 2012) – item „rgdpcyh” – Converted PPP GDP per capita Chain Series, at constant 2005 prices. Logarithm of the variable was chosen in order to exclude the exponential form of growth of economies, through which the countries with high absolute levels of GDP per capita grow with higher absolute increments (Michener, 2003).

Investments

The component of investments will be measured by the price level of investments for the country from $t_0$. This indicator was obtained from the Penn World database, Table 7.1 (Heston et al., 2012) and its level compares the price level of investment goods with the overall level of prices in the USA (the price level in the USA = 100). The level of this indicator can determine the status of the country compared to the “reference” value in the given year. It also reflects the differences between countries due to local conditions, such as tariffs, government regulations, exchange rates, etc.

Interpersonal trust

To measure the level of interpersonal trust in the countries, secondary data obtained from surveys of the World Values Survey (2009) were used. For the needs of our research, we have processed the answers on the question: “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?” with two possible answers: “Most people can be trusted” or “Can’t be too careful”. In further analysis the level of interpersonal trust in the year “$t$” is a percentage of people within the country in the year “$T$” intended, who answered that people can be trusted. Mathematically speaking, the level of trust in the people is calculated as a share of the answers “people can be trusted” to the total number of responses in a given year in the given country.

It needs to be mentioned, that WVS surveys are not carried out for each country for the continuous time period. Thus, unbalanced panel data have been used in the research. The data covers the survey wave conducted from 1995 – 1998, respecting the choice of stable economic period regarding GDP per capita data.
Human capital

To measure the level of human capital in our case, the variable used by authors Berggren et al. (2008) and Roth (2006), was used – average school attendance years in population that finished its studies and has the age above 15 years (gender regardless). Data are secondary in nature and were obtained from the database of Barro-Lee Dataset (Barro and Lee, 2010) – the variable “Average Years of Schooling Attained.” The information in this database is collected at 5-year intervals, always at the beginning of the decade and in its center (for example 1990, 1995, 2000, etc.). For each observation is selected a value from the year nearest to \( t_0 \) (if, for example \( t_0 \) is 1996, data about the average school attendance from year 1995 is used). Merely this indicator causes the inaccuracy to the model, as the level of education is not from the year \( t_0 \) (this inaccuracy will cover ¼ of the sample, as only ¼ of observations will correctly work with the level of attendance from 1995). One half of the sample will be given the level of attendance from 1 year delay compared to \( t_0 \) (in sum, up to ⅔ of the sample will work only with inaccuracy caused by a one year delay). In addition, the education level is quite stable variable over years (more stable than the trust variable, what supports our approach to design the data modelling in comparison to authors of previous empirical studies). Below, the “stem-and-leaf” graphs for the average annual change in Trust and in Average years of schooling attained for 1990-1995 are presented. The time deviation of trust in previous researches was in many cases significantly higher, because the level of trust was collected on a horizon of, for example, 10 years – in our case, the time deviation is maximum 2 years (plus or minus). Based on the above, the possible inaccuracy caused by the level of average school attendance measured this way is smaller than the uncertainty caused by the delay (compared to \( t_0 \)) in the measurement of trust from the studies (Knack and Keefer 1997; Zak and Knack 2001; Roth 2006 Berggren et al., 2008).

![Figure 2. Comparison of „Stem-and-Leaf“ graphs of average annual growth of trust and school attendance between 1990-1995](image)

4. Sample description

The regression analysis will use a sample of 47 observations from a 5-year period around the year 1995. As it was mentioned previously, the key variable for data collection is the level of trust in the irregular nature of the collection. From the year when the trust was measured (\( t_0 \)) are all the other variables derived – all other explanatory variables are also from \( t_0 \) (except of the indicator of average school attendance, where in ⅔ of the sample the delayed data will be used). All explanatory variables are thus concentrated around the year 1995, obtained in the 5th wave of the World Values Survey Survey (2009) carried out between 1994 and 1998. The sample is represented by countries from all continents.

The highest average annual growth in GDP per capita since \( t_0 \) in a 10-year period reached 10.43% in Armenia, while the smallest growth of 0.802% was in Colombia. Thus, no country on this 10-year term did not record a decline, although dips were present. The average value for this group of countries is 2.937%. The highest level of prosperity (GDP per capita) is in Norway (40381.27 USD, which is a logarithmic adjustment after 10.61),
again, the lowest is in Bangladesh (800.24 USD, 6.68 after logarithmic).

The largest share of people (65.3%) with the answer that other people can be trusted was in Norway, the lowest level of trust has been measured in Brazil, only 2.8%. Country with the lowest average school attendance – only 1.22 years – is Nigeria. The highest attendance is in USA – 12.630 years. The lowest price level of investments is in India – it is given at the level of 34.188% of the price level of USA. The highest price level of investments in in Japan – 145.766%.

5. Results and discussion

At the beginning, according to the equation No. 1 a model of an average annual growth of GDP per capita for the 10-year period from t₀ after year t₁₀ will be created (according to Berggren et al., 2008, note: Knack and Keefer, 1997 used a 12-year period). Parameters of the regression model using cross-sectional data described above are estimated by the method of least squares.

Based on the results of executing regression modeling, the model predicting average annual growth of GDP per capita for the country can be written in the following format (Equation 2):

\[
y_{t_0} = 0.137224 - 0.015443\ln Y_{t_0} - 0.000265I_{t_0} + 0.005172H_{t_0} + 0.046428T_{t_0}
\]  

(2)

There are the following relationships between the explaining and explanatory variables:

\[
\ln Y_{t_0} \quad \text{negative relationship (coefficient -0.0154, standard coefficient -0.694), and this relationship is statistically significant at the significance level 0.001,}
\]

\[
I_{i,t_0} \quad \text{negative relationship (coefficient -0.00026, standard coefficient -0.305) and this relationship is statistically significant at the significance level 0.053,}
\]

\[
H_{i,t_0} \quad \text{positive relationship (coefficient +0.0052, standard coefficient 0.578) and this relationship is statistically significant at the significance level 0.004,}
\]

\[
T_{i,t_0} \quad \text{positive relationship (coefficient +0.0464, standard coefficient 0.284) and this relationship is statistically significant at the significance level 0.020.}
\]

In application of the “2-sigma” rule the direction of the impact (positive or negative) of each explanatory variable on the growth rate remains unchanged (the regression coefficient of trust has the lowest border of 95% confidence interval at +0.0104).

When comparing the standardized coefficient, it is seen that the greatest impact (0.694) on the growth rate in the ten years’ period from t₀ has the initial level of GDP per capita, followed by members of the human capital (+0.578), member of the investment (-0.305) and member of the trust is to last place (0.284).

Trust and economic growth - moving time window

As a complement to the models described, we will notice a change in the results of regression models depending on the replaced time horizon which the average annual growth rate of GDP per capita is calculated for. It will thus compile additional 9 models, with a time horizon of explaining variable will be in the extent t₀, t₁ (annual period) to T₀, T₉ (nine-year period). The results of the regression are shown in the tables below.

When looking at the factors (Figure 3), we see that in the three-year time horizon there are the same relationships (positive and negative) between explaining variables and explanatory variables, as was the case with 10-year term.
<table>
<thead>
<tr>
<th>dependent variable</th>
<th>Average annual growth of GDP per capita over the period from $t_0$ to $t_5$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$t_{0,t_1}$</td>
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<tr>
<td>(constant)</td>
<td>.122***</td>
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<td></td>
<td>(.0454)</td>
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<tr>
<td>GDP per capita in $t_0$</td>
<td>-0.012**</td>
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<td></td>
<td>(.0082)</td>
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<tr>
<td>The price level of investment in $t_0$</td>
<td>.000</td>
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<td></td>
<td>(.0002)</td>
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<tr>
<td>The average school attendance in $t_0$</td>
<td>.002</td>
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<td></td>
<td>(.0030)</td>
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<tr>
<td>Level of trust in $t_0$</td>
<td>.046</td>
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<td></td>
<td>(.0356)</td>
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</tbody>
</table>

**Figure 3.** Trust and economic growth - the results of regression models for time horizon of 1-10 years from $t_0$.  

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1 Significant at the significance level of 0.1 (*), 0.05 (**) and 0.01 (**). In brackets the White’s standardized deviations are presented (due to the presence of heteroskedasticity based on Breusch-Pagan test the robust estimate was used). All regressions satisfy the condition of absence of multicollinearity (based on the values of VIF) and normality levels (based on Shapiro-Wilk test).
The initial level of income and price levels of investment have a negative coefficient, education and trust on the contrary, a positive coefficient. The model with the three-year average growth rate of GDPpC trust is the only statistically significant variables, on a four-year term the price level of investment is added to it. In the 5-year term for these variables education is increasing, but till the six-year term are all variables at least at the level of significance equaling to 0.05 statistically significant.

Regarding the standardized regression coefficients, we see that the coefficient of trust is growing after a 5-year horizon, and from that moment it is dropping, the maximum impact on the growth rate is in the fifth year from the time $t_0$. In education we see a growing progress with an increasing time horizon for the eighth year, after which is the standardized coefficient slightly falling. Education thus acts in a slight delay compared with trust. Investments are across the horizon surveyed remaining relatively stable, although the maximum is recorded in the fifth year. With regard to the initial level of income of the country, the impact is stronger for the longer term, as the value of the standardized coefficient increases with the addition of years. It is interesting, that when in the explanatory model of the ten-year average growth GDPpC is the trust the least influential explanatory variable, in a 5-year horizon the situation the opposite – trust has the highest standardized coefficient.

It can be assumed that higher the initial level of GDP per capita (in terms of constancy of other variables in the model), the greater the decline in the growth rate. This confirms the findings of many empirical studies based on the so-called. “Barro” regressions (Barro, 1991 and successors), which show that less developed (less rich) countries grow faster, because in those countries there is untapped potential of available labor - e.g. adding units of capital in a poor country will make an increase of the product of a greater extent than it would make in a rich country. This phenomenon is known as $\beta$ - convergence. Due to the logarithmic transformation of GDP per capita within the modeled regression is possible to quantify the impact of the variable per capita GDP on the growth rate – for example by increasing GDP per capita of 10% (from 5000 USD to 5500 USD, or from 20000 USD to 22000 USD) when the condition of constancy of other variables is fulfilled, a decline in the growth rate of GDP per capita by 0.1471875 percentage points can be expected. Within the reporting timeframe, this variable is statistically significant from 6-year-term growth rate of GDPpC.

There were new findings made on a new sample and created by a model with higher accuracy due to harmonization of observations with the year of measurement in our study of the key variable – the levels of trust confirm the findings from previous empirical research (Knack and Keefer 1997; Zak and Knack 2001; Berggren 2008; Roth, 2006), although these could not demonstrate statistical significance for all variables at the necessary level (e.g. in Roth, 2006, therefore, excluded from the learning model). We managed to point out the significance of all selected variables in our models. The reason why some of the searches conducted until now have not been able to offer all the variables to be statistically significant is is probably due to the chosen time horizon. The results show the suitability of this model at least 5 years of economic growth, although this term is the initial income level in the country not significant yet – the 6-year to 10-year horizon model includes such variables as statistically significant.

The time design of the model used by us also allowed the study of changes in the results of the model (with particular emphasis on the impact of trust) at varying time horizon of the explaining variable. The model constructed gets a statistically significant explanatory variable in a time horizon of 2 years since $t_0$ and it is the level of trust. Trust is only the first variable from the used explanatory variables that have significant impact on economic growth. Then, the price level, the average schooling, followed by the initial level of income of the country are gradually added with the extending time horizon. At nearly the whole monitored horizon of the average growth rate of GDP per capita (except for the first two years) the variables are monitored in the same direction – trust is positive, the initial income is negative, the price level of investment is negative and education is positive. The model is therefore useful to predict the rate of growth for the medium term, when the growth in cleared from short-term fluctuations, which is the intended timeframe when constructing the so-called. “Barro regressions” (Barro, 1991 and successors). Methodologically most comparable (except for a different point in time captured by data of trust and average school attendance) is a model of the authors Berggren et al. (2008). They also use 10-year time window and it differs from our research only in sample. The model is constructed
on data between 1990 and 2000. The difference in the coefficient belonging to trust in our case is 0.464, at the
given authors it is higher (0.062). It is questionable whether is this shift caused by the design of the model, but
the truth is that to trust were given higher coefficients in a shorter time period, so, if the previous models used
a lot of values of trust from the middle of the examined period, it could overestimate the impact of trust on the
predicted growth rate.

Conclusions

The main aim of the paper was to analyse how the impact of trust on macroeconomic growth changes upon time. First,
we will sum up whether in the context of the results the expected relationship between the explanatory variables
and the average growth rate GDPp was fulfilled. As stated above the amount of initial macroeconomic perfor-
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of trust in the company. This change will not close the ongoing legal disputes of the past automatically. Also, the company will immediately devote less time to check sources, counterparties, etc. Therefore, it can be assumed that this 5-year-old shift is caused by the inertia of the set according to the last state of trust in the company.

To study the impact of trust on economic performance the most limiting factors are data regarding interpersonal trust gathered in the survey for the World Values Survey, as they are acquired irregularly, in the so-called waves with about five-year pitch, while the individual waves are not covered by the same countries. Data are therefore in the rom of unbalanced panel data limiting its potential for exploring causal link between trust and other monitored variables.

The second problem referred to by Dehley et al. (2011), is the so-called “radius problem” in the context of measuring the level of trust for the country. The problem lies in the fact that the question of whether you believe most people has a big impact on the wideness of respondent’s range of “most people”. In rich countries is this range wider than, for example, in countries affected by Confucianism.

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References


Towards Sustainable Organization: Integrative Conceptual Model for Employer Branding

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Abstract. Despite the great popularity of employer branding among practitioners, research in the field still poses a number of critical questions and issues for management scholars. Given an implicit but undeveloped employer branding theory and its conceptual ambiguity, this paper reviews terminology of the phenomenon, clarifying the essence of employer branding from both marketing and management perspectives. Employer branding process is investigated through comparative analysis of available employer branding frameworks and, overcoming their limitations, an integrative conceptual employer branding model is developed and an analytical three-step process for employer brand development is suggested as a means towards sustainable organization.

Keywords: employer brand, brand identity, employer branding, employer brand development, employer branding framework, employer branding proposition, organizational attractiveness


JEL Classifications: M12; M30

1. Introduction

Employer branding as an influential approach and a new discourse of human resource management (Martin et al., 2005) has received much attention in practitioner world and has prompted a steady stream of articles, books (Barrow and Mosley, 2011; Sartain and Schumann, 2006), blogs and investigative pieces, as well as a rapid growth of consultancy firms and services, devoted to the topic. The literature examines theoretical foundations and conceptual framework of employer branding (Ambler and Barrow, 1996; Backhaus and Tikoo, 2004; Edwards, 2010; Lievens et al., 2007; Moroko and Uncles, 2009; Mosley, 2007; Wilden et al., 2010; Martin et al., 2005), analyzing its dimensionality (Hillebrandt and Ivens, 2013; Berthon et al., 2005; Baronienė, Žirgutis 2016; Raudeliūnienė et al.; 2016), exploring premises of attraction to an employer (Highhouse et al., 2007; Highhouse et al, 2003; Devendorf and Highhouse, 2008; Schreurs et al, 2009; Zaveri and Mulye, 2010; Nadler et al., 2010; Ehrhart and Ziegert, 2005; Lievens et al, 2001; Lievens, 2007; Lievens and Highhouse, 2003; Yu, 2014; Kausel and Slaughter, 2011; Lievens et al, 2005; Turban, 2001; Jiang and Iles, 2011; Shahzad et al., 2011; Prakapavičiūtė, Korsakienė 2016), and investigates specific aspects of the phenomenon, such as positioning (Sartain, 2005; Sivertzen et al, 2013; Kroustalis and Meade, 2007), employer branding outcomes (Davies, 2008; Cable and Edwards, 2004; Fulmer et al, 2003; Mosley, 2007), effects of corporate social performance (Turban and Greening, 1997; Albinger and Freeman, 2000), and characteristics of successful employer brands (Moroko and Uncles, 2008).
Nevertheless, more research is still needed on employer branding as there are more questions than answers and little empirical data as well as serious, independent studies on particular aspects of employer branding are available (Jenner and Taylor, 2007; Martin, 2007). The undeveloped employer branding theory, its conceptual ambiguity (Backhaus and Tikoo, 2004; Moroko and Uncles, 2008, Martin, 2007; Edwards, 2010, Lievens, 2007) and the lack of knowledge on how organizations should develop and implement effective employer branding (Backhaus and Tikoo, 2004; Edwards, 2010) is particularly regrettable, since being a great workplace creates reputation which attracts talents, reduces turnover, fosters creativity and innovation of employees, sets a high-quality standard on culture, increases resistance against downturns or market shocks, provides higher levels of customer satisfaction and loyalty and, eventually, helps an organization to outperform its competitors and achieve financial success (Great Place to Work, 2014). Moreover, motivation, which is provided by the good workplace „can be viewed as a prognostic factor of sustainability/unsustainability of development of the company as a whole“ (Guseva et al. 2016:145). On the larger scale, innovation and „the development of human capital are the most important indicators that are creating the competitiveness and sustainability of the country“ (Aleksejeva, 2016: 354). Therefore, it is the particular ambition of this paper to elaborate on the terminology of employer branding construct and to explore a framework for employer brand development strengthening its conceptual foundations and providing with the analytical framework for its practical application.

2. Defining the employer brand

Employer branding was first coined by Ambler and Barrow (1996: 187) and defined as “the package of functional, economic and psychological benefits provided by employment and identified with the employing company”. Employer branding is also defined as “a targeted, long term strategy to manage the awareness and perceptions of employees, potential employees, and related stakeholders with regards to a particular firm” (Sullivan, 2004: para 1). Furthermore, employer branding “represents organizations’ efforts to communicate to internal and external audiences what makes it both desirable and different as an employer” (Jenner and Taylor, 2007: 7). As Rosethorn and Mensink (2007: 6) assert, “employer branding is not a project or a programme. Nor is it a rush to freshen up your recruitment advertising. It’s a way of business life. Understanding what engages people and being clear about what an organization offers and does not, means that you are more likely to recruit and therefore retain the right people.”

Still and all, the broad but non-finite range of available partially overlapping definitions of employer brand and employer branding, presented in Table 1, displays the existing confusion and profusion of terminology in the employer branding literature.

<table>
<thead>
<tr>
<th>Definitions</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>“The package of functional, economic and psychological benefits provided by employment and identified with the employing company”</td>
<td>Ambler and Barrow (1996: 187)</td>
</tr>
<tr>
<td>“How a business builds and packages its identity, from its origins and values, what it promises to deliver to emotionally connect employees so that they in turn deliver what the business promises to customers”</td>
<td>Sartain and Shuman (2006: vi)</td>
</tr>
<tr>
<td>“An employer brand is a set of attributes and qualities – often intangible – that makes an organization distinctive, promises a particular kind of employment experience, and appeals to those people who will thrive and perform to their best in its culture”</td>
<td>Chartered Institute of Personnel and Development (2007)</td>
</tr>
<tr>
<td>“Represents organizations’ efforts to communicate to internal and external audiences what makes it both desirable and different as an employer”</td>
<td>Jenner and Taylor (2007: 7)</td>
</tr>
<tr>
<td>“A targeted, long-term strategy to manage the awareness and perceptions of employees, potential employees, and related stakeholders with regards to a particular firm”</td>
<td>Sullivan (2004: para 1)</td>
</tr>
<tr>
<td>„Employer branding is an activity where principles of marketing, in particular the “science of branding”, are applied to HR activities in relation to current and potential employees”</td>
<td>Edwards (2010: 6)</td>
</tr>
<tr>
<td>“The employer brand establishes the identity of the firm as an employer. It encompasses the firm’s values, systems, policies, and behaviors toward the objectives of attracting, motivating, and retaining the firm’s current and potential employees”</td>
<td>The Conference Board (2001: 10)</td>
</tr>
</tbody>
</table>
The term employer branding suggests differentiation of a firm’s characteristics as an employer from those of its competitors, the employment brand highlights the unique aspects of the firm’s employment offerings or environment.

Employer branding is “the process of building identifiable and unique employer identity”.

Employer branding involves managing a “company’s image as seen through the eyes of its associates and potential hires”.

“The image of your organization as a ‘great place to work’ in the mind of current employees and key stakeholders in the external market (active and passive candidates, clients, customers and other key stakeholders). The art and science of employer branding is therefore concerned with the attraction, engagement and retention initiatives targeted at enhancing your company’s employer brand”.

“An employer brand is the sum of all the characteristics and distinguishable features that prospective candidates and current employees perceive about an organization’s employment experience”.

Employer branding “represents a further extension of branding theory and research, involving efforts to communicate to existing and prospective staff that the organization is a desirable place to work, creating compelling, distinctive employee value proposition”.

Employer branding has emerged as a viable conceptual framework unifying separate disciplines of human resource management and brand marketing and applying brand management techniques and brand thinking to employment context (Ambler and Barrow, 1996). Therefore, clarifying the essence of employer branding it should be seen from both management and marketing perspectives.

In marketing terms brand is “a name, symbol, logo, design or image, or any combination of these, which is designed to identify the product or service” (Kotler et al. 2009: 425) and to represent the consumer’s experience with an organization, product or services. A brand is intended to differentiate products, services, persons or places and distinguish them from those of competitors. According to Kotler et al. (2009), a brand can also be viewed as a holistic, emotional and intangible experience and be strong enough to “evolve feelings and belongings, love and affection” (p. 426).

As suggested by Aaker (2012) and summarized by Esch (2010; see Figure 1) brand can be seen from four perspectives: 1) brand as a product; 2) brand as an organization; 3) brand as a person, and 4) brand as a symbol, altogether forming a brand identity. The brand as a product encompasses product-related associations and product-related attributes providing functional and emotional benefits. Product-related attributes create a value proposition, offering unique or better quality and value features and services. Brand as a product may be associated with use occasion, typical users or linked to a country or region. The brand as an organization perspective is related to organizational attributes, such as quality or innovativeness that are based on organizational values, culture, programs and people. The brand as a person consists of a brand personality concept and customer-brand relationship construct. Eventually, brand as a symbol includes audio and visual images, metaphors and brand heritage. All four perspectives should be considered in order to build strong brands; however, for some of them only one perspective will be appropriate.

Brand identity, similarly as a person’s identity, provides direction, purpose and meaning for the brand and includes a core and extended identity, where core identity embraces the central, timeless essence of the brand; whereas the extended identity “includes brand identity elements, organized into cohesive and meaningful groupings that provide texture and completeness” (Aaker, 2012: 3). Brand essence can focus on what the brand is, or a rational appeal that emphasizes functional benefits (e.g., Xerox: “The digital document company”), or it can focus on what the brand does to its customers, i.e., emotional benefits, such as Microsoft: “Help people realize their potential” (Aaker and Joachimsthaler, 2009: 48-49).
A useful way to think about the brand is offered by Esch et al. (2006: 63) with the Brand Steering Wheel (see Figure 2) which is an instrument used to find out how the brand is seen by customers and to create a corresponding brand identity. The Brand Steering Wheel comprises the left objective part including brand competence, brand benefits, and the reason why, and the right subjective or emotional part including brand tonality and brand picture. Brand competence asks company “Who are we” and is concerned with organization’s history and duration in the market, origin of organization, its role in the market and central brand assets. Brand benefits (and the reason why) distinguish between brand attributes (which properties do we have), i.e. attributes of products and services, and characteristics of the company, and value proposition (what do we offer) of the brand functional and psycho-social benefits. Brand tonality refers to emotions and feelings connected to the brand, its personality traits, brand experiences and brand relations. Finally, brand picture reflects all perceptible modalities – specific visual, haptic, olfactory, acoustic and gustatory impressions as an effect of brand awareness and image.

Evidently, these four pillars of brand identity can be easily associated with the mind-set of Aaker (2012), where brand competence can be linked to brand as organization, brand benefits can be linked to brand as a product, brand tonality can be related to brand as a person, and brand picture can be related to brand as a symbol.

**Fig. 1. Brand identity model**

**Fig. 2. Brand Steering Wheel**
Transferring this holistic approach to the context of employer branding, it can be noticed that employer brand could be also perceived as a product, offering “functional, economic and psychological benefits provided by employment” (Ambler and Barrow, 1996: 187), as an organization, encompassing “the firm’s values, systems, policies and behaviors” (The Conference Board, 2001: 10), as a symbol involving “the image of … organization as ‘great place to work’” (Minchington, 2011a: 28), or as a person with intangible qualities appealing to and emotionally connecting employees (Sartain and Shuman, 2006: vi; Chartered Institute of Personnel and Development, 2007).

Putting the focus on the brand as a product or, otherwise, on the brand attributes and value proposition, existing and potential employees will be seen as customers, and unique and particular employment experience will be conceived as a branded product (Edwards, 2010; Moroko and Uncles, 2008). Respectively, employer branding will suggest “the differentiation of a firm’s characteristics as an employer from those of its competitors” (Backhaus and Tikoo, 2004: 502) and imply that employer experience is an organization-specific employment offering determining organizational attractiveness.

As Table 2 demonstrates, similarly, extending on the assertion from marketing literature that brands play functional, rational and symbolic roles related to the performance or representation of product or service (Kotler et al., 2009), employment experience will therefore encompass the totality of tangible and intangible reward features provided to and valued by employees, such as challenging, stimulating and fulfilling work environment, competitive compensation and benefits, engagement with and positive regard for an employer of choice, cumulatively constituting a compelling employment value proposition (Simmons, 2009).

Table 2. Benefits of aligning external and internal brands

<table>
<thead>
<tr>
<th>External brand (customers)</th>
<th>Corporate brand Benefits</th>
<th>Internal brand (employees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High quality goods and services</td>
<td>Functional</td>
<td>Challenging, stimulating and fulfilling work environment</td>
</tr>
<tr>
<td>Excellent value for money</td>
<td>Economic</td>
<td>Competitive compensation and benefits</td>
</tr>
<tr>
<td>Premium products, preferred supplier</td>
<td>Psychological</td>
<td>Employer of choice, engagement with the organization</td>
</tr>
<tr>
<td>Affinity with organization values and belief in its societal contribution</td>
<td>Ethical</td>
<td>Affinity with organization values from perceived congruence of its ethical dealings with employees, customers and wider society</td>
</tr>
<tr>
<td>A compelling product value proposition to current and prospective customers</td>
<td>Cumulative</td>
<td>A compelling employment value proposition to current and prospective employees</td>
</tr>
</tbody>
</table>

Source: Simmons (2009: 686)

Summing it up, employer brand could be referred to as a set of particular employment experience attributes that makes an organization distinctive and attractive as an employer (to existing and potential employees). This definition could be visualized through a concentric circle model of employer brand as shown in Figure 3, where concentric circles indicate the catalytic outward process of employer brand development and suggest the coherence of its facets.
With this definition the emphasis is put on the internal perspective, i.e. building employer brand from the inside out: identifying and articulating the experience employees can expect – from training, performance management, and compensation to rewards, promotion and communication. This primarily means answering the fundamental question for the employee “What’s in it for me?” if I work there and touches every dimension of the employee’s relationship with the organization (Sartain and Schuman, 2006: 43).

3. Employer brand development

Illustrating the scope of concepts and contexts, covered by employer branding activities it is useful to consider the ‘bigger picture’ as it is demonstrated by Minchington’s (2012) employer branding eco-system (see Figure 4), providing with some basic insight into diversity of stakeholders and complexity of functions engaged in building strong employer brand.
In their major study Backhaus and Tikoo (2004) presented a theoretical foundation and conceptual framework for employer branding, incorporating marketing and human resource concepts (see Figure 5). Authors suggest that employer branding creates two main assets – employer brand associations and employer brand loyalty. Employer brand associations affect brand image, which in turn enhances attraction to the company. Organizational culture and employer branding have a reciprocal relationship: employer branding reinforces and changes organizational culture, and organizational culture impacts employer branding. Backhaus and Tikoo (2004) see organizational identity as the attitudinal contributor to employer brand loyalty and as a successor of employer branding. Finally, employer brand loyalty is supposed to increase employee productivity. The authors conclude that employer branding is a useful framework for strategic human resource management and provides support for the organizational career management program.
As Figure 6 shows, the conceptual framework of employer branding developed by Martin (2007) suggests that employer branding begins with the creation of an employer brand image, encompassing the organization’s package of functional, economic and psychological benefits. Two key drivers of employer brand image are corporate identity and organizational identity (in contrast to Backhaus and Tikoo, 2004) that are conceived as products of organizational culture, i.e. “hidden values, assumptions and beliefs that define ‘the way we do things around here’” (Ibid, p.19). Corporate identity there is defined as a posture of organization’s mission, strategies and culture, expressed through logos, architecture and communication of ‘what it is’, while organizational identity refers to organizational self-concept of ‘who we are’, “revealed in its shared knowledge, beliefs, language and behaviors” (Ibid). Further, in this model, employer brand reputation stands for the biographical account of organization instrumental and symbolic attributes offered to and perceived by potential and existing employees. According to Martin (2007), positive employer brand reputation should help attract talented applicants, ensure employees’ identification with the organization and, eventually, result in desired organizational performance, in turn enriching organizational identity.
Jiang and Iles (2011) followed Backhaus and Tikoo (2004) complementing their model by elaboration on the relationship between organizational attractiveness and employee-based brand equity. First, as mentioned earlier, a broader perspective was adapted to understanding of organizational attractiveness distinguishing between internal attractiveness encouraging existing employees to stay with the company, and external attractiveness encouraging potential employees to apply. Next, intentions to accept a job or stay with the company were analyzed as consequences of organizational attractiveness, which in turn were considered as a consequence of employee-based brand equity. Employee-based brand equity therein is referred as employer brand equity as perceived by employees and assessed by five dimensions: economic value, social value, development value, interest value and brand trust. Employer brand equity is defined as a value provided by employment to existing and potential employees. Interestingly, Wilden et al. (2010) have found that employer attractiveness is an antecedent of employee-based brand equity.

Although being fairly comprehensive, the above models still lack some integrity, depth and rigour, and leave unanswered questions and questionable assumptions. Therefore, incorporating the conceptual employer branding frameworks proposed by Martin (2007), Backhaus and Tikoo (2004), Model of Employer Brand Equity formed by B. Minchington (2011a) and encompassing the foregoing theoretical considerations an integrative employer branding model is developed here and presented in Figure 7 for further elaboration.

The model suggests that employer branding is a circular process that begins with the creation of an employer value proposition. Employer value proposition or otherwise referred to as an employer brand proposition (Barrow and Mosley, 2011) or brand promise (Martin, 2007; Backhaus and Tikoo, 2004) is a central message to be embedded in employer brand about unique employment experience and particular value offered by the company to the existing and potential employees (Backhaus and Tikoo, 2004; Edwards, 2010). For example, Stanford Project on Emerging Companies (SPEC) while explaining determinants and diversity of employment relations and blueprints has elaborated on three types of attachment (Work, Love, Money), three types of selection (Skills, Potential, Fit) and four types of coordination/control (Peer/Cultural, Professional, Formal and...
Direct), finally clustering into five basic employment models (Engineering, Star, Commitment, Bureaucracy and Autocracy). As Hsu and Hannan, (2005) have put it “firms’ identities in the labor market are expected to be wrapped up with these employment systems and with the cultures they create”. It should be noted and stressed here that employment experience or employment offering is organization specific and encompasses a “complex array of features” (Edwards, 2010).

Ambler and Barrow (1996) have suggested that employer brand offers employees: (1) developmental and useful activities (virtuositas, or functional benefits); (2) material or monetary rewards (raritas, or economic benefits); and (3) feelings such as belonging, direction and purpose (complacibilitas, or psychological benefits). Drawing from psychological contract literature (Martin and Hetrick, 2006), employment experience can be also differentiated on ideological benefits, as providing employees the self-fulfillment through “doing good”. As Barrow and Mosley (2011: 123) state, “the proposition statement should try to capture the most compelling advantage offered by the employer”, such as trust and respect, an interesting job, the opportunity to get on, and a boss who supports you in Tesco; or fair and equitable pay, coaching and development, effective resource management, and pride and belief in values of organization in Building Society; or possibility to have a great start, work/life balance, to learn and grow, to be in the know, to make a positive impact, to be recognized, to share rewards and to share great ideas in Compass Group.

Furthermore, as Edwards (2010: 7) explicitly argues, “a central element to employer branding involves the identification of elements of the character of the organization itself; features such as the organization’s key values and the guiding principles underlying how it operates as a collective entity”. To put it in another way, in order to create successful employer value proposition corporate identity and organizational identity should be researched, understood and, ideally, incorporated.

The concept of corporate identity, even though grown out from logos and outward presentation of a company to external audiences, “is not merely a projected image in the form of visual design and communication, but is fundamentally concerned with ‘what the organization is’ encompassing the strategies and culture specific to the organization in particular” (Cornelissen et al., 2007: S7).

Meanwhile organizational identity can be conceived “as the collective attitude about who the company is as a group” (Backhaus and Tikoo, 2004: 509); it embraces the organizational ‘core’ and encompasses “key values and the guiding principles underlying how it operates as a collective entity” (Edwards, 2010: 7). Organizational identity reflects organization’s purpose and philosophy – what is perceived as central, distinctive and enduring to a focal organization by internal (and external) audiences (Margolis and Hansen, 2002; Lievens et al., 2007). Organizational identity can also be seen as “as an interpretative system, or as a set of shared cognitions, or as shared language and behaviors” (Cornelissen et al., 2007: S6). In this vein, organizational identity can be understood as a ‘single organism’ or ‘human being’ with inherent identity of ‘who am I as an organization?’, or as cognitive self-representation adopted by organizational members, or as a construct of organizational rhetoric, myths, stories and culturally patterned practices. Davies and Chun (2002) offer to define identity as an internal dimension which reflects the employees’ feelings and comprehension of the organization by answering the questions “who are we?” and “how do we see ourselves?”. These unique and timeless features of the organization are seen as fundamental by its members (Puusa and Tolvanen, 2006).

Nevertheless, organizational identity is regarded as one on the prime inputs of employer value proposition and, accordingly, of the whole employer branding, the research streams focusing on organizational identity and employer branding have evolved and partly remained apart with few unifying attempts (e.g., Lievens et al, 2007). However, discovery and research of organizational identity allows understanding the common organizational consciousness; it reveals the shared perception of ‘who we are’, enables uncovering the employment experience it embraces and identifying the features that make organization attractive as an employer. The latter phenomenon needs some more consideration. It should be noticed that organization, even though doing nothing at the area of employer branding nevertheless has its particular employment relations and practices and will definitely have a positive or negative reputation as an employer and will be perceived as an attractive or
poor place to work. This perspective unfolds a particular feature of organizational attractiveness that is *unconsciousness* and *deliberateness*. Employer branding is aimed at creating an employer of choice, i.e. *deliberate* employer attractiveness, while organizational attractiveness stemming from perceived employment experience is by nature an *emergent* phenomenon.

Another insight follows from the notion of organizational attractiveness as an employer that is referred to as “the envisioned benefits that a potential employee sees in working for a specific organization” (Berthon et al., 2005: 156) or the degree to which potential applicants and current employees favorably perceive organizations as places to work (Jiang & Iles, 2011). It suggests that organizational or employer’s attractiveness is a *two-dimensional* construct, where *internal attractiveness* expresses perceptions of existing employees and *external attractiveness* perceptions of potential applicants. It is worth mentioning that it is pretty a novel approach to organizational attractiveness, forasmuch as previous research has put an emphasis on the potential applicants perspective (e.g. Berthon et al., 2005; Ehrhart and Ziegert, 2005, etc.) and very few studies have involved actual employees (e.g. Turban, 2001; Lievens et al., 2007) which could help to explore an ‘experienced’ opinion and make an attempt to answer why individuals who were attracted and selected consequently retain. Admitting this limitation of organizational attractiveness research, scholars (Nadler et al.; 2010; Ehrhart and Ziegert, 2005; Jiang and Iles, 2011) argue for more studies examining perceptions of workforce population.

Moreover, “it is crucial to study identity and attractiveness together because organizations typically want to attract talent by developing an attractive employer image while at the same time ensuring that this image is consistent with employee’s views of the identity of the organization” (Lievens et al., 2007: 46). An integrated view of corporate and organizational identity is also presented by van Riel and Balmer (1997), who state that corporate identity indicates “the way in which an organization’s identity is revealed through behavior, communications, as well as through symbolism to internal and external audiences” (p. 341). Most significantly, as the authors argue, the alignment, transparency and consonance between organizational identity, corporate identity and, additionally, corporate reputation (the images of organization held by outsiders) should be achieved; otherwise the misalignment will result in employee disengagement, customer dissatisfaction and organizational decline (Cornelissen et al., 2007).

Consequently, as Barrow and Mosley (2011) suggest, starting with corporate vision or mission, or the ‘big idea’ for organizations existence (corporate identity), proceeding with organizational values providing differentiation, further honestly and authentically describing the personality of organization (organizational identity) – serious, passionate, challenging or fun, and, finally, identifying the range of benefits that drive employee engagement (employment experience) should allow capturing particular attributes of organizational attractiveness and eventuate in a specific employer brand proposition and tailored employee value propositions. Furthermore, the authors state that employer brand proposition is an integral part of organization’s core proposition along with customer brand proposition, and that they are closely interrelated: the strength of customer brand plays an important role in attracting the right people, and *vice versa*, a positive employer brand helps building and supporting the customer brand. Referring to employer brand proposition as a most compelling and common reason given for employees’ commitment and loyalty to the organization, the authors claim that it should bring “focus and consistency to the employee’s experience of the organization” (Barrow and Mosley, 2011: 117).

Further, *internal and external employer brand marketing* activities should desirably result in *employer brand equity* that is referred to as a four-dimensional construct of *employer brand awareness* (the level of knowledge people have about an organization’s positive or negative employment characteristics), *perceived employment experience quality* (the association people have about working for an organization stemming from online, e.g., career website, and offline, e.g., word of mouth source), *employer brand associations* (thoughts, ideas, imagery, symbols, emotional and rational attributes an organization’s name evokes) and *brand loyalty*, i.e. person’s intentions to apply and accept the job as well as remain employed driven by the positive associations with the organization (Minchington, 2011a). Employer brand equity and particularly employer brand associations are
the determinants of employer brand image (Minchington, 2011b). The employer brand image, as an autobiographical account of who it wants to be forms the employer brand reputation that is the biographical account of who it is perceived through instrumental and symbolic attributes (Martin, 2007). The employer brand image affects employer attractiveness to potential employees and strengthens organizational identification and engagement among existing employees, which in turn strengthens and enriches organizational identity.

Discussion and conclusion

In this paper the existing terminology of employer brand was summarized and, admitting its confusion, a definition of employer brand was developed defining it as a set of particular employment experience attributes that make organization distinctive and attractive as an employer. Employer branding process was investigated through comparative analysis of available employer branding frameworks and the integrative conceptual employer branding model was developed and comprehensively discussed. From a practical perspective, the model suggests a number of managerial implications and can be utilized by organizations for their employer brand development through a three-step process of 1) Extraction, i.e., internal research assessing organization’s current employment environment and the nature of employment relations, and answering the question “Who am I?”; 2) Distillation and Contemplation, capturing the essence of organizational attractiveness as an employer and answering the current and potential employees “What’s in it for me?”; and 3) Creation, Activation and Cultivation, constructing distinctive, authentic, energizing and compelling employer value proposition, deeply embedding it into organization’s psyche and soma and living your employer brand (see Figure 8).

Fig. 8. Analytical three-step process for employer brand development

<table>
<thead>
<tr>
<th>STEPS</th>
<th>OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraction</td>
<td>• What employment experience organization provides to its employees?</td>
</tr>
<tr>
<td></td>
<td>• What are employee work values, needs and expectations?</td>
</tr>
<tr>
<td></td>
<td>• How organization’s employment experience quality is perceived and what are the areas for improvement?</td>
</tr>
<tr>
<td></td>
<td>• What factors drive organizational attractiveness as an employer?</td>
</tr>
<tr>
<td></td>
<td>• How committed are employees to their organization?</td>
</tr>
<tr>
<td>Distillation and Contemplation</td>
<td>• What employment experience organization should be offering to its existing and potential employees?</td>
</tr>
<tr>
<td></td>
<td>• What kind of employees’ organization is eager for?</td>
</tr>
<tr>
<td></td>
<td>• Where the uniqueness and distinctiveness of organization’s attractiveness as an employer lies?</td>
</tr>
<tr>
<td></td>
<td>• What particular attributes and values of employment experience should be embedded in employer brand?</td>
</tr>
<tr>
<td>Creation, Activation and Cultivation</td>
<td>• ‘Translate’ the extracted and distilled knowledge into a compelling and authentic employer value proposition - brainstorm, outline and build organization’s employer brand.</td>
</tr>
<tr>
<td></td>
<td>• Develop efficient target group-oriented employer brand strategies.</td>
</tr>
<tr>
<td></td>
<td>• Communicate organization’s employer brand to external audiences</td>
</tr>
<tr>
<td></td>
<td>• Make and keep a promise to existing employees</td>
</tr>
<tr>
<td></td>
<td>• Nurture your employer brand and get employees connected and committed.</td>
</tr>
</tbody>
</table>

Source: own
The key idea behind the application of this framework is that every organization has an employer brand whether or not it has ever spent any time developing it. The Extraction stage is designed to diagnose the health of this unintentional employer brand and to find out whether it is working for or against organization (Sartain and Schuman, 2006). Accordingly, it should initiate the development of intentional employer brand that would derive from inside and enhance employee connection, commitment, contribution and engagement. Being very clear about where the organization is and where it wants to get to helps to introduce changes and eventually become an employer of choice. Organizations that would adopt the suggested employer brand development framework were enabled to strategically build their successful employer brands, introduce changes and establish their identity as an employer.

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Towards Conflicts’ Settlement: Development of the Meaning of Mediation in the Legal Doctrine

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Abstract. The alternative methods of dispute resolution are new field of study in Latvia. In most cases procedural issues of these methods and their real practical application are outside any legal regulation. One of these alternative dispute resolution methods is called mediation. Person, who is responsible for the management of this process, is called mediator. The meaning of this term is known from the ancient civilization times. It is useful to understand the initial comprehension of mediation in order to successfully implement this process in the legal system of modern society. Nevertheless the elaboration of mediation procedure asks serious evaluation of possibilities in order to completely evolve basic principles of alternative dispute resolution methods in the legal system of any country. Answering on question whether it is possible to completely realize the concept of mediation, it is necessary clearly understand, what it is and how you can use the advantages of this process in real life.

Keywords: mediation, comprehension, concepts, conflict settlement


JEL Classifications: K10, K14, K40

1. Introduction

The term “mediation” as a conflict resolution option the first time has been used by ancient Chinese and ancient Indian philosophers in the sixteenth century BC (Wikipedia). Similarly, the concept of mediation is used in commercial law of Phoenicia in the fourth century BC (A Short History of Mediation). Mediation application development took place in ancient Greece and ancient Rome (History of Mediation), providing possibilities for the usage of mediation in the Justinian’s Digest (History of Mediation). At the same time, despite the existence of a sufficiently long history of the concept of “mediation”, this term hasn’t a universal definition. This is due to the wide range of forms of expression of term “mediation”, as well as to differences in law-making process in various countries (The Origin of Mediation).

2. Origin of the notion „mediation”

The absence of common understanding of mediation causes controversy in the scientific community. There is an opinion that accurate determination of mediation is difficult to achieve (Topor, Dragomir 2012), or, due to its similarity with the other methods of dispute resolution (Teivāns-Treinovskis, Amosova 2016), mediation is difficult to define (Brown, Duggan 2012). However, the meaning of mediation is important to determine and narrow from the other cases, when the conflict is solved because of the application of other alternative dispute
resolution methods (Girūnas, Mackevičius 2014), without going to the conventional courts (Johnson 2012).

Accurate determination of the mediation concept is an important condition for the understanding of its nature (Genn 2010). The term “mediation” is derived from the Latin word “mediationem”, which means “split in the middle” (Online Etymology Dictionary). Sometimes this term is associated with the origin of the Latin word “mediare”, which means “average” (Bouvier), as well as with the Latin word “medius”, that means “in the middle” (Etymology of the word mediation). Often researchers of the concept of mediation associate meaning of the the word “mediation” with the Celtic word “medi”, that means “of the middle” (Etymology of the word mediation). There are an assumptions, that the term “mediation” is derived from the ancient Gallic word “Mediolanon”, which means “center of the territory” (Etymology of the word mediation). A more precise defi-
nition of the term “mediation” can be obtained by extracting the root “med” from the word “mediation”, that
means “to think” (Galletto, Mattiaccio 2011) or “help to determine” (Price 2012). In this sense, mediation can
be linked to efforts to understand and help solve the problem (Bastard 2010).

The author points out, that in the modern English language word “mediation” has several meanings: 1) inter
vention in dispute with a view to settle the dispute; 2) intervention in the process or relationship; 3) persuasion;
4) arbitration (Oxford Dictionaries Online).

Merriam-Webster Encyclopedia Britannica defines mediation as 1) intermediation act or process; 2) interference
between the conflicting parties for the promotion of satisfaction or compromise; 3) physical act or process of in-
termediation (Merriam-Webster Encyclopedia Britannica). The American Heritage Dictionary of the English Lan-
guage defines mediation as 1) intermediation act, interference; 2) condition of intermediation; 3) attempt to reach a
peaceful settlement or compromise between the parties of dispute through the objective interference of neutral third
party (The American Heritage Dictionary 2010). Collins English Dictionary provides a detailed definition of the
term “mediation”: 1) act of intermediation; 2) the resolution method of any dispute, arising between the countries,
engaging a third neutral and friendly country; 3) industrial dispute resolution method, where the third - a neutral
party conduct consultations with the sides of the dispute and recommends solution of the dispute, which, however,
is not binding for the parties (Collins English Dictionary 2003). Kernerman Webster’s College Dictionary gives
relatively short explanation of the term “mediation”: act or process of intermediation between the parties in order to
reach an agreement or reach a settlement of the conflict (Kernerman Webster’s College Dictionary 2005).

The above insight into the term “mediation” essentially confirms, that the Latin word “mediation” has had sev-
eral meanings, that aren’t referred solely to the alternative resolution of conflicts, using middle man - so called
mediator.

3. Scientific definition

Defining problem of mediation is connected with research works of social scientists. The first scientific discus-

sion in foreign scientific literature, concerning defining issues of mediation, can be considered R. S. Woodworth’s
1928 publication “Stimulus Response Theory” (Figueredo, Garcia, De Baca, Gable 2013; Woodworth 1928) as
well as H. H. Hayman’s 1955 book “Survey design and analysis: principles, cases and procedures” (Hyman
1955), where mediation is defined as “elaboration” (Kenny). Italy in the 1930 an Italian philosopher Antonio
Gramsci in the book “Prison Notebooks”, that had been translated in English in 1971, examine mediation as an
ability to influence parties of conflict through the division of unequal power (influence) between them (Gramsci
1971). In Russia, the term “mediation” in legal literature appeared only in the last decade of the 20th century
(Hendley 2012), although certain elements of mediation was used in the 14th century (Lisicin 2009). Need for
the definition of concept of mediation in the early 20th century was actual because of rapid development of the
alternative dispute resolution methods and as a result with an inadequacy of the concept of “alternative dispute
resolution procedure” to describe the processes, that contribute to the alternative resolution of conflicts.

However assessing the stage of the 20s to 50s of the 20th century, it is obvious, that the scientific world didn’t
pay special attention to the research of mediation.
In the sixties such US researchers as Rehmus C. M., Marchant M. P., Cooper C., Raskin A. H. mainly defined mediation as a neutral third-party effect on the disputing parties in order to achieve an end to dispute (Rehmus 1965; Marchant 1994; Cooper; Raskin 1966).

In the early seventies with emergence of the Restorative Justice doctrine the United States began a gradual mediation research. R. F. Greenwald wrote a publication on alternative conflict solving between inmates and the prison administration, and offered the following definition of mediation: mediation is a process without competition, an intermediary defines the condition, according to which parties of the conflict negotiates, overcoming long existing antagonistic stereotypes and can gradually see the mutual goals (Greenwald 1978).

H. G. Gadamer in the 1975 book “Truth and Method” reveals concept of mediation through the situation without values and impartiality, helping to achieve a mutually acceptable solution to the conflict (Gadamer 1975). N. E. Abrams, R. S. Berry in the 1977 publication “Mediation: a better alternative to science courts” defines mediation as “process of bringing out the facts through better communication, whether differences remained or not” (Abrams, Berry 1977). At the same time Soviet scientists in the 20-70s of the 20th century completely denied any alternative conflict resolution, because it was believed, that only state institutions were able to settle any dispute (Knjazev 2004).

In 1980, when the moral, existential, political and legal approach to the definition of mediation has been integrated with economic, psychological and philosophical approach, mediation were defined primarily as an alternative dispute resolution method, which is based on a certain ideology, but neutral intermediary participation in the scheme were considered to be the essential condition. During this period of time very popular were R. Fisher and W. Ury, which in 1981 issued the first edition of book “Getting to Yes!”, where the necessity of mediation usage is stressed in the all conflict situations. Mediation concept, looking it from philosophical positions, is described by the J. Habermas in the 1981 book “Between Facts and Norms: Contributions to a Discourse Theory of Law and Democracy” (Habermas 1981). Undoubtedly, there are parallels existing with other traditional approaches to the definition of mediation. For example, P. S. Adler defines mediation as a conflict resolution option, the aim of which is not related with the suppression of the argument, but is connected with a meaningful form and coordinated processes (Adler 1984). In the 80s Soviet scientists continued to reject any possible conflict settlement alternatives to the traditional justice (Makarov 2006), linking the potential of alternative dispute resolution among the workers only with the members of the worker’s trials (Istorija mediacija). However, it is possible to meet certain legally theoretical publications about the possible settlement procedures outside the court, that designate a mediation with the term “intermediation” (Rjasencev 1984).

In the 90s of the 20th century understanding of mediation as an alternative mean of conflict resolution strengthened its positions, expanded understanding of the potential use of mediation in the different areas, different mediation techniques and methods were defined by the practitioners. M. M. Severson and T. V. Bankston in the 1995 book “Social work and the pursuit of Justice through Mediation” defined mediation as a problem hearing and determination of the parties, involved in the dispute, offering solutions to the problem and organization of the parties’ discussions, aimed at the ending of the conflict (Severson, Bankston 1995). G. P. Hawkins and C. T. Hawkins in the book “Alternative dispute resolution” link definition of mediation with the mediator, imposing him with special competences in organizing and directing the negotiation process of the parties, involved in the dispute (Hawkins, Hawkins 1993). D. E. Nolls attribute mediation to the Primal Dispute Resolution methods, offering to connect the conflict resolution process with a participation of a neutral intermediary with arbitration proceedings, which are rather similar with the traditional court proceedings (Nolls 1999).

D. L. Levi in the 1997 book “The role of apology in mediation” links concept of mediation with the involved readiness to apologize to each other (Levi 1997). Relatively broad definition of mediation offers W. A. Rohne in the publication “Outside the courtroom: Mediators put a new spin on an old process”: “Mediation is a forum, in which a neutral person, the mediator, provides communication between the conflict parties, in order to help them came to the terms of reconciliation or achieve understanding between them (Rohne 1998).

In the 90s of the 20th century in the Russian Federation have appeared the first scientific publications about mediation. At the same time actively progressed work with adoption of the foreign experience studies in the
field of application of alternative dispute resolution methods. During the existence of the USSR, Soviet legal scientists focused mainly on the traditional functioning of the judicial system (Tejvan-Trejnovskij, Lavrinenko 2016) and its improvement, and denied existence of any systemic problems of socialist law. In the 90s of the 20th century, the Russian scientists had turned to the research of problems of alternative dispute resolution methods, without denying the existence of conflict settlement problems in their national legal system.

Professor V. V. Jarkov in the 1992 monograph “Legal facts in the civil procedure implementation mechanism” mention mediation between alternative dispute resolution methods, without revealing its notion (Jarkov 1992). Honorary Lawyer of the Russian Federation A. P. Belov in the 1998 publication “Beyond economic dispute alternative settlement methods”, defining mediation, indicated, that it is one of the alternative legislative practices, which is used by the conflict sides in a case, when they want to settle their conflict peacefully, as well as when parties are seeking for the establishment of their legal position in a dispute, enabling the assessment of their mutual arguments to the neutral intermediary (Belov 1998). Professor N. V. Turishova in the publication “Conciliation proceedings and the settlement in the foreign civil proceedings”, studying a foreign experience in the areas of alternative dispute resolution methods, pointed out, that mediation is the reconciliation of the conflict parties, with participation by the third neutral intermediary (Turiseva 1996). Professor J. V. Kudrjavceva in the book “Judgment in the English civil procedure” pointed out, that mediation is one of the pre-litigation conflict resolution options (Kudrjavceva 1998). Professor M. I. Kiselov in the book “Comparative and international labor law” refers mediation as one of the labor dispute settlement methods with participation of neutral intermediary (Kiselev 1999). Professor S. V. Jurchenko in the 1999 publication “The question of legal nature of the contract” pay attention to mediation as one of the methods, which will make it possible to reach almost every settlement between the parties (Jurcenko 1999).

At the beginning of the 21st century US mediation researcher L. Beekman defined mediation as an informal, confidential process, in which the parties, involved in conflict, with specially trained neutral person assistance, trying to find a mutually acceptable solution to their dispute (Beekman). R. Rubinson defined mediation as an intervention in conflict or in negotiations by a third party, that is specially empowered for that purpose and which has limited decision-making power or has no such power, but who helps conflict parties voluntarily agree on mutually acceptable conditions for the termination of their dispute (Rubinson 2004). D. O. Adetoro referred, that mediation is a usage of the third party, that is aimed at helping to those, who can’t agree to settle their conflict, or may agree on ending their conflict, but much later each of the parties suffering additional damage as a result of the conflict (Adetoro 2005). Mediation researchers the United States C. T. Autry, G. C. Reid, R. F. Hall in the publication „Mediation: Effective Resolution Of Contract Disputes” described mediation as a conflict settlement process, that necessarily requires a neutral third-party participation, which helps to agree on the terms of ending the dispute, without settling the essence of the conflict (Autry, Reid, Hall 2005). Russian Federation professor D. N. Sahabutdinova in her dissertation “Auction as a subinstitute of the contract law and legal procedure” referred, that mediation is the bargaining procedure, determining a joint work program of the involved parties, with a neutral third party participation, concluding future agreement, that is goal of the procedure (Sahabutdinova 2007). M. O. Vladimirova defined mediation as reconciliation of the parties, with a third neutral party participation, reconciliation procedure, which is implemented in accordance with the principles of voluntary participation, confidentiality, mutual respect, equality between involved parties and mediator’s impartiality (Vladimirova 2014). V. O. Abolonin in the publication “Commercial Mediation in Russia: Special development vector” defined mediation as a procedure, in which a mediator with no decision-making power, using special communicative techniques, help the conflict parties to negotiate effectively, as well as help them to develop a common solution of the dispute, that satisfies the interests of both sides (Abolonin 2012). Professor D. V. Kutjukov described mediation as a conciliation process of conflicting parties, when both sides are involved in the voluntary negotiations with a neutral third party - the mediator’s participation, in order to reach a mutually acceptable settlement of the conflict (Kutjukov 2011).

Latvian social science representatives were focused on the exploration of mediation, and thus the definition of mediation, at the end of the 90s of the 20th century, after the restoration of independence and following legal system’s unification with democratic national rights. The author referrers, that understanding of mediation mean-
ing between Latvian researchers is relatively uniform. For example, professor J. Bolis in the publication “Mediation: Application in the United States and prospects for Latvia” defined mediation as an extrajudicial process, where a professionally trained neutral person, who is not involved in the dispute, helps the parties themselves to find a solution in the dispute (Bolis 2011). Attorney at Law and Mediator practitioner D. Rone in the publication “Mediation: The concept and possibilities” defined mediation as a process, in which two or more persons’ dispute shall be settled out of court, through one or more mediators’ assistance (Rone 2006). Master of Law and attorney at Law R. Matjushina in the 2008 publication “The introduction of mediation for the settlement of commercial disputes” defined mediation as a voluntary and confidential process, in which a third, neutral party, led negotiations between conflict sides, without rights to make a decision (Matjušina 2008). German specialist A. Trossen, that practises as a mediator in Latvia, described mediation as a conflict resolution process, in which parties of the conflict with support of mediator, defines their own solution of the conflict and therefore all the parties, involved in the proceedings, are winners (Trossen). Lawyer S. Bertainis in the 2009 publication “What will be the Latvian mediation” pointed out, that mediation is a structured process, regardless of how it should be named or referred to, in which two or more involved parties, voluntarily seek to agree for a dispute settlement with the assistance of a mediator (Bērtaitis 2009). V. Ligerts defined mediation as a voluntary process, in which both sides of a dispute meet with a neutral third party (mediator), to discuss differences and reach an agreement (Ligers). Legal researcher M. Luksa in the 2012 publication “Mediation in civil proceedings: continue with the court’s recommendation” referred, that mediation is a structured process of voluntary cooperation, in which involved parties shall endeavor to reach a mutually acceptable settlement of the dispute, through a cooperation with mediator (Luksa). Almost the same meaning of mediation is provided by A. Jatniece-Labucka un J. Dzanushkans “Mediation is a dispute resolution process, in which parties of the conflict with a third, neutral party or mediator, are trying to find a mutually satisfactory solution” (Jātniece-Labucka; Dzanuškāns).

Petersone defined mediation as a structured cooperation process of the conflict sides, in which a neutral person (the mediator), using a variety of techniques and professional skills, helps parties of the dispute reach a voluntary, mutually acceptable solution of the dispute (Pētersone). Practising mediator L. Bochs in the 2014 publication “Nation and mediation” referred, that mediation could be regarded as a voluntary conflict resolution process, using a mediator and through an agreement upon process to ensure each participant’s interests in the conflict resolution agreement (Bočs 2014).

Conclusions

Results of the research lead to a conclusion, that development of the understanding of mediation progressed unevenly in the western and eastern countries. For the founders of ideological development of mediation and its guidelines should be considered legal researchers from the Anglo-Saxon legal family countries. At the same time it must be recognized, that mediation philosophy in the western and eastern world is based on the same basic principles of alternative dispute resolution process with the mandatory participation, implementation and assistance of a neutral third intermediary, who uses special techniques for the settlement of the conflict.

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Abstract. Ensuring security is one of the main functions of the state, therefore, in that area one has to deal with a wide range of threats and challenges. In the analysis of the changing security environment issues in the 21st century, it is reasonable to look at historical events and to do appropriate case studies. Lithuania in the interwar period can be considered as a very valuable case in the context of the analysis of threats to national security. Over two decades, Lithuania acquired the experience of the conventional warfare, encountered analogues of little green men, and went through military coups, civil unrest, and the consequences of economic sanctions (economic warfare); it was exposed to external intelligence and agents of influence of other states operating underground who spread subversive rumours and distributed underground newspapers and leaflets. The present paper focuses on the range of those issues.

Keywords: Lithuania, economic sanctions, war refugees, military coup, civil unrest, uprising, non-state military formations, warfare, rumours.


JEL codes: R5

1. Introduction

As the security environment in the Baltic Sea Region, just like all over the world, keeps rapidly changing in the 21st century, new challenges inspire one to view the issue from different perspectives. Despite the trends, patterns, and similarities, history is not a repeating process (historians study unique events), as there are always different conditions and actors (Carr, 1999). However, it still „happens“, i.e. certain parallels and similarities can be noticed. In that context, an apt observation is worth noting that history repeats „first as tragedy, then as farce“ (Marksas, 1949). As stated by Robin George Collingwood (1946), in the course of development of the Western civilisation, people were thinking historically and have not stopped doing so, while historian John Tosh, when emphasising the significance of history, summed up:

„Historical difference lies at the heart of the discipline’s claim to be socially relevant. As a memory-bank of what is unfamiliar or alien, history constitutes our most important cultural resource. It offers a means — imperfect but indispensable — of entering into the kind of experience that is simply not possible in our own lives. Our sense of the heights to which human beings can attain, and the depths to which they may sink, the resourcefulness they may show in a crisis, the sensitivity they can show in responding to each other’s needs — all these are

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nourished by knowing what has been thought and done in the very different contexts of the past. ... History reminds us that there is usually more than one way of interpreting a predicament or responding to a situation, and that the choices open to us are often more varied than we might have supposed” (Tosh, 2010).

In the study, for the analysis of the security and stability of the state, the modus operandi of a historical approach has been chosen: the range of threats for national security and stability will be revealed, based on the Lithuania’s case study. Their impact on the society development and the (non)preservation of the statehood will be established. The study aims to verify the hypothesis that indirect actions experienced by states is a permanent phenomenon intended to affect, weaken, or even enslave them. The interwar Lithuania is a case study to be carried out in three sections. First, the military factor in the national security assurance context will be dealt with, second, the impact of the internal national crises on the state stability; and third, the significance of economic and social problems for the sustainable development of the society and the state.

In the context of historical studies, the extrapolation from national security – economics, energy, public satisfaction with the quality of life, public information (disinformation or propaganda), and other fields – in the context of the current issues of the 21st century can both contribute to the understanding of the genesis of those phenomena, the opportunities of their application, and their impact and consequences, as well as to the identification of the impact and for the preventive measures against undesirable effects. Upon analysis and reconsideration of different historical experiences, it may seem that nothing new is happening on the plane of the state security and stability of the 21st century, as we face the application of the old, if slightly forgotten, methods by means of the latest technologies. The targets, however, remain the same: human well-being and their minds. During the conventional warfare, human lives are also sought.

2. The military factor

In the interwar years, Lithuania faced with a wide range of military threats. In the years 1919-1920, Lithuanian Wars of Independence with the Soviet Russia, the West Russian Volunteer Army (Bermontians), and Poland took place. During the wars, Lithuanians twice met with military formations that de jure were not state armies, i.e. the Bermontians and Żeligowski’s Mutiny (Polish: bunt Żeligowskiego, also żeligiada). In the first case, it was the Germany-, and in the second, Poland-coordinated military units, however, the countries, to avoid the political consequences, formally distanced themselves from those formations. The West Russian Volunteer Army was formally created from the First World War Russian Empire Army prisoners of war in Germany, however, actually the bulk of the forces were former soldiers of the German Army. Their prime objective was to overthrow the Government of Latvia, and afterwards of other Baltic states, and to bring them under Germany’s sphere of influence. Part of the Polish Army under General Lucjan Żeligowski „rose up“ and captured Vilnius, the historical capital of Lithuania (Lesčius, 2004); their aim was to restore Lithuania that would be in unionist relations with Poland, as in the times of the Polish-Lithuanian Commonwealth. In 1919, the Polish Military Organisation (Polish: Polska Organizacja Wojskowa, POW) organised a military coup in Lithuania, seeking to take over the power and to incorporate Lithuania in the Poland-planned union, however, the state of Lithuania managed to track it down and to prevent.

The Bermontians failed to implement their plans, while the forces of General Żeligowski were accompanied by a partial success. In the first case, those were strangers from other countries who had no relations with the territory they were fighting in. Moreover, their marauding and murders caused great indignation, and eventually resistance, of the local population. Besides, the German armed forces could not directly support them. Żeligowski’s case was different. Part of his army were locals, coming from the areas where they were fighting. In addition, part of the local population were of the pro-Polish disposition and supported them. However, the key factor leading to their partial success was the fact that the flanks of the said forces were covered by two corpses of the regular Polish army (one in the south, in the Suwalki region, and the other in the north-east, in the Daugavpils region). The indirect support did not allow the Lithuanian army to counterattack and to get Vilnius back, as it would have fallen into a „trap“ – there was a risk of encirclement (Rezmer, 2004). Besides, the Lithuanian Army risked to get involved in large-scale open hostilities with all the Polish Army, and not only with the part of it which purportedly claimed to have risen up and no longer subject to Poland.
Lithuania lost its historical capital Vilnius and about 1/3 of the territory recognised as its part by Soviet Russia under the treaty of 12 July 1920, however, the conflict with Poland was not resolved in the interwar period, and its political consequences are still felt in the 21st century. In the occupied Vilnius Region, a quasi-state was founded: the Republic of Central Lithuania (Polish: Republika Litwy Środkowej), which in 1922 de jure (as de facto it already was in its composition) was annexed to the Republic of Poland. However, a region of a frozen conflict formed where permanent exchange of fire took place and, before 1923, all along the demilitarised zone (about 500 km in length), a Lithuanian and Polish guerrilla warfare was fought (Vareikis, 1999, 2004), in which regular military units of both states were sometimes involved.

The Lithuanian Army was permanently preparing for a eventual war with Poland. There were fears that Poland may suddenly and unexpectedly invade Lithuania (Lesčius, 2013). Still, the conflict also had an international and diplomatic context, and in the League of Nations, an active struggle of both parties was going on, which nearly ended in Lithuania's recognition as aggressor; in that case Poland would have been given the mandate to „to curb“ Lithuania by military measures (Vilkėlis, 2006; Žalys, 2007). In that context, next to Germany, a very important role in ensuring the security of Lithuania was played by the USSR (Kasparavičius, 1996, 1999, 2011, 2012), however, none of the countries had had a commitment to provide military assistance in the case of a war with Poland. Both Germany and the USSR supported Lithuania in accordance with their own interests, which most frequently did not correlate with the long-term interests of Lithuania.

Lithuania's war with Poland transformed into a prolonged frozen conflict which failed to be regulated until 1939, when the state of Poland ceased to exist de facto. Lithuanians were chanting: we shall not relent without Vilnius, as they had lost not only one third of the territory recognised by international agreements (under the border agreement with Soviet Russia of 1920, Lithuania got the area of 88 thousand km², while interwar Lithuania covered the area of just 56 thousand km²), but also its historical capital Vilnius. Of course, it is important to note that the greater part of the lost eastern and southern territories were not Lithuanian in an ethnic sense, as the Polish and Belarusian languages predominated there, and the cities, as well as the whole region, boasted numerous Jewish communities. The situation between 1923 and 1938 could be defined as a frozen conflict, with no hostilities taking place, although border guards used to exchange fire and would sometimes wound or kill one another. Lithuania closed the demarcation line (the official state border had not been determined) and cut off the trade relations.

In order to destroy the self-confidence of the soldiers in the Lithuanian army and to break their will to resist, rumours (or false information) were spread. They were named in the army order of 1935: „Lithuania is a small and weak country that can in no way resist Germany, therefore, sooner or later it will have to go to Germany“, or „we (Lithuania - V.L.) shall do nothing against Germans“; the rumour spread that, as soon as the war began, all the soldiers were going to drop their arms and surrender to Germany, or even that soldiers served in the enemy army (Kariuomenės štabo aplinkraštis, 1935). As observed in the army, quite a few of private soldiers tended to „very and very pessimistically view the army as a force“: „what can we do“, „we shall be smashed“ were repeated again and again“. Such an opinion was believed to be unjustified, unacceptable, and very harmful, as when the soldier’s self-confidence was destroyed, the very sense of the fight was questioned (Sidlauskas, 1938). The rumours of that kind became especially active after the capitulation of Czechoslovakia in 1938 and the defeat of Poland in 1939. Great military power of the Soviets was publicly commented upon by Col. Jonas Černius, Chief of the General Staff of the Lithuanian Army, in 1937, after his visit to the USSR. In 1939, at the time of the Winter War, the Lithuanian press wrote that the Soviet military power was much greater as compared to the Finnish and that breaking the resistance of the Finns was only a matter of time (Jokubauskas, 2014), „since it was such a power that the resistance of Finland against it, to think humanly, was impossible. Whether the fight will last several weeks longer of shorter, is not of great importance“ (Bagdonas, 1940). Thus, the ideas of the great power of the large states and the allegedly inevitable defeat of the small countries were made public (and penetrated into the military press), even if it did not happen in the case of Finland. In 1940, in the face of the Soviet ultimatum and occupation, according to the then Minister of Agriculture Juozas Audėnas, he remembered the destructions of the First World War and believed that the nation would go and fight, if called to arms, however:
“in the total war with a hundredfold greater enemy, there is no hope of defending ourselves, and the consequences of such a war can be immeasurably terrible. For the defence of the nation or the state, if it is at all possible, more than half of the population can be sacrificed. But is the sacrifice worth making when it results in a clear and complete defeat and there is no hope of victory?” (Audėnas, 1966).

In the interwar period, a phenomenon of spiritual warfare was analysed which can be considered as a prototype of the information warfare, just at a lower (the interwar potential) technological level:

“The concept of the spiritual warfare includes: a war between enemies by word of mouth spread by the radio, agents, and the anti-state element; the war of the press, the diplomatic competition, and the secret espionage fight. In short, the battlefield of the warfare will be people’s spirits, the area of their minds and nerves. The warfare has no front lines or boundaries: it covers all the territory of the state and concerns each individual. A spiritual warfare between the states takes place almost without a break, even at a quiet time – and in the case of the relationship deterioration, in the moments of tension, or in anticipation of an armed conflict, it goes in full force and uses all the weapons with the aim of affecting the spirit of the opposite side and of breaking the will of the fighters. The moral weapon sometimes manages to achieve so much that the physical force has only to make use of the victory of the spiritual weapon: a spiritually knocked down enemy has just to be taken captive and their land has to be occupied <...> The performance of the secret enemy propaganda and of the intelligence will be more successful in the case of an ignorant land, a low culture, and uneducated people. An ignorant person who has no state-related idea and no patriotism is much easier to be persuaded, frightened, or seduced. The narrower the mind, the lower level of the spiritual culture, the poorer understanding of the state and national affairs<...> , the more withdrawn into the narrow circle of personal affairs, in the daily routine, and in the material concerns an individual shall be. Such an individual will be more susceptible to hypnosis and more fearful, as he has no idea and no stimulus for resolution and courage. And the success in scaring, in provoking fear is the best victory of an enemy, because the one who lost courage and is shaking has already been defeated: it remains only to put shackles on his hands” (Šepetys, 1939).

The issue of rumours (false information, disinformation, or propaganda) in interwar Lithuania was aptly defined in the Karys weekly:

„Lithuania hears quite a lot of rumours, and that has been happening from the very first days of the building of Independence. And that is because it has always had and continues to have different enemies who do not like Lithuania’s Independence or the freedom of the Lithuanian nation<...>. Throughout the years of our statehood, if one pays more attention to the spreading rumours, one feels who is the master and the distributors of those rumours. And one notices! As soon as our state has a conflict with some neighbour about defending its own rights, immediately a certain group, that have a special liking for that neighbour, start disturbing people’s minds with self-produced rumours. This dishonourable craft is mainly undertaken by some people from the ethnic minorities of Lithuania. <...> Remember that the rumour is spread by our enemies who wish to disturb our mood and to weaken our will and determination <...> The rumours are not only to undermine our nerves, but also to set us against friendly neighbours” (Širvys, 1940). „In the fight against evil rumours, foreign state agents and their subversive activity, the humiliation of the power and the state authority, every conscious Lithuanian is invited to be active and thus contribute to the independence strengthening task“ (Pirmasis karinės, 1940).

Thus, on the one hand, Lithuania, all the society, and its armed forces in the interwar years were faced with verbal attacks against the state, the political regime, the armed forces, and their ability to defend the country. On the other hand, the threats were identified, they were reflected upon in the press and in secret circulars intended for the army. A range of counter-measures was named: public education, observation of the environment, and the response to the distributors of rumours and disinformation in order to prevent their destructive activity.
3. Internal tensions

A most frequently remembered and scientist-analysed case was the successful military coup of 17 December 1926, when the power was seized by the Christian Democrats and the Nationalists. Antanas Smetona became President, and Augustinas Voldemaras, Prime Minister; they quickly removed the Christian Democrats from power, and ultimately Voldemaras was also made to resign. Thus, Smetona got established in power, and his brother-in-law Juozas Tubelis became Prime Minister. That was when the saying „the land of brothers-in-law“ spread. An attempt was made to compensate for a lack of democracy through different public organisations, which acquired a wide scale, however, the opposition to the Nationalist political regime remained (Tamošaitis and Svarauskas, 2014). Therefore, the state experienced more than one attempt to seize power by a military coup. The failed Tauragė uprising in 1927 and an unsuccessful military coup in 1934 were the best known cases. The army played an important role in the political life of the country (Vaičenonis, 2004), where the martial law was introduced and military censorship was in force (Kuodys, 2009).

However, even more problems were caused by the permanent threat of an uprising in the Klaipėda Region. From the geopolitical viewpoint, through Klaipėda Lithuania had access to the sea and became a maritime state; moreover, it could perform important functions of a buffer and a mediator between the mainland and marine routes (similarly to Antwerp in Belgium or to Rotterdam in the Netherlands) (Laurinavičius, 2010). On the other hand, the internal political situation in the Klaipėda Region and the local people’s views on the Republic of Lithuania complicated the possible military defence prospects in that coastal area. In 1923, when after an improvised uprising the Klaipėda Region was annexed to Lithuania (Vareikis, 1995 and 2009), the local population was not very optimistic about the state of Lithuania. Before the First World War, in 1910, the people in the region whose native language was only Lithuanian accounted for 47.53 % (Vileišis, 1935), while during the population census in 1925, 26.56 % reported they were Lithuanians, 24.24 %, Memellanders, and 45.28 %, Germans. The emergence of a new group raised an issue of the causes of changes in the population identity and opened up possibilities for interpretations: since Germans accounted for 69.5 %, or Lithuanians for 51 %, of the population in the region they could thus justify their greater rights to the territory (Safronovas, 2010). However, pro-Lithuanian dispositions, or rather their nulity, were disclosed by the results of the election to the Seimelis (Landtag) of the Klaipėda Region, when the lists of Lithuanians would never get more than 5 places out of 29 (Žalys, 1993), thus, German parties predominated and always got over 80 % of the votes (Žostautaitė, 1992). Prussian Lithuanians in the Klaipėda Region and Lithuanians in Lithuania Major were linked by the language, while the culture and religion were the separating dimensions. No less important was the fact that those two Lithuanian-speaking communities did not share a tangible common past that the community members were aware of. Therefore, defending the region whose population did not even desire to be „defended“ was a hardly feasible mission for the Lithuanian Army (Žalys, 1993).

Incidents between the Lithuanian government and its military forces and the local population started as early as in 1923, and on April 6 to 11, one of the most unpleasant incidents of the 20s of the 20th century took place in Klaipėda: the strike of the local population (Žalys, 1993). On April 8, a crowd of about 9,000 people gathered in a Klaipėda suburb, and the Lithuanian armed forces were sent to disperse them: radically-minded people shouted at Lithuanian soldiers: „Szameiten, raus!“ Another outstanding case in the interwar period when the army had to calm the anti-state minded civilian crowds was known in the recovered Vilnius in the autumn of 1939, when the Lithuanian army was faced with the unrest and pogroms of the Polish-minded population (Žepkaitė, 1990). On 2 August 1924, the Lithuanian Armed Forces Staff sent a telegram to inform Lt.Col. Petras Genys, Commander of the 7th Infantry Regiment, about a planned assault on his regiment. The Regiment Commander reported that the local residents planned to rise up on the night from August 4 to 5 and first of all attack the Klaipėda barracks. When the meeting place of the heads of the uprising was found out, on the night of August 2, 11 of them were arrested with evidence. The press wrote that the rebels (about 400 men under the leadership of the former German Army Feldwebel Friedrich Blumenau) had planned to attack the barracks in Klaipėda at about 1 or 2 a.m. On 4 August 1924, the Lithuanian Armed Forces Staff informed the Commander of the 3rd Military District that an uprising of the local population was again expected on August 23-25. In the late 1924, the Lithuanian Armed Forces Staff again informed the Commander of the 7th Infantry Regiment that
during Christmas local Germans or Communists may again try to organise „a putsch“. On December 30, the Commander of the Regiment reported that, in accordance with the possessed information, at night Germans were planning to attack the Šilutė Garrison that had already prepared to fend off the attack. The Armed Forces Staff immediately ordered the 5th Infantry Regiment to be prepared to leave Kaunas for Klaipėda, and a plan of their transfer was prepared. However, the next day, Lt. Col. Genys informed that „nothing happened“. One of the threats in the Klaipėda Region named by the Lithuanian Armed Forces Staff was an uprising of the separatistically-minded local population, therefore, on 15 March 1927, a plan for the uprising suppression was made. In 1931, the Staff issued an additional order for the army to start suppressing unrest in case the police and the Riflemen were unable to do that. Provided the communication with the military authorities were lost, the army was ordered to act at its own discretion. Communists who could organise unrest were also considered as a threat, and a plan of the Klaipėda City defence was prepared (Jokubauskas, 2016). Most of the Germans from the Klaipėda Region, who were guided by a slogan „The Nemunas is our river, but not our border“ believed the new situation to be temporary. For them, the existence of Klaipėda in the sovereignty of Lithuania seemed to be the greatest historical injustice (Žalys, 1993).

In 1934, the Neumann-Sass trial started, when several hundred inhabitants of the Klaipėda Region were detained, and secret weapon and ammunition warehouses were confiscated (Jokubavičienė, 2012). The separatist structure was incriminated in an intention to organise an armed uprising and to annex the region to Germany. After the trial that caused an international interest, 87 people were sentenced, 4 of them to death. Germany’s response was harsh, and from the very beginning of the Neumann-Sass trial, attacks against Lithuania started, warning the public that Lithuanian with the assistance of France may even attempt to occupy East Prussia. Following the verdict, protest demonstrations in different cities were held. On 12-22 March 1935, on the border with Lithuania, Germany drew up the troops and held maneuvers, attended by Luftwaffe Reichsmarschall Hermann Göring (in the interwar period, the method of the military force demonstration on the border area was applied both by Poland and also by the USSR in 1940 when pressing to accept the ultimatum. On the border with Lithuania, it concentrated 220,000 soldiers, and altogether in three military districts against the Baltic countries, the Soviets had 542,000 soldiers (Мельтюхов, 2014), thus occupying Lithuania without an armed resistance). German military and civilian aircraft were flying over Lithuania with the aim of air reconnaissance. Over the period from 2 June 1934 to 18 February 1936, the Lithuanian airspace was violated at least 26 times. Simultaneously Germany used diplomatic measures, and over the years 1934 to 1935, it sent 17 notes to Lithuania. After experiencing the pressure of Germany and failing to get support from the great powers, Lithuania started retreating. Amnesties of the convicted followed. In the middle of 1938, not a single convict of the case was imprisoned, and not a single death sentence was carried out (Žostautaitė, 1992).

In 1938, i.e. 15 years after the annexation of the Klaipėda Region and when preparing for the commemoration of the 20th anniversary of Lithuania’s Independence, the head of the Klaipėda Garrison stated:

„The Klaipėda and Macikai Garrisons are stationed in very unfavourable conditions with regard to the coexistence with the local community. Part of the community is Germanised and watch the troops with hatred, which prevents the soldiers’ communication with them. That part of the community lives in isolation from the troops and culturally has nothing in common with them. (...) The Lithuanian community in the neighbourhood of the German segment that the soldiers ought to culturally communicate with is financially poor. They enjoy a small number of cultural entertainments“ (Ažubalis, A. et al., 2007).

On 4 December 1938, in an incident related to the exchange of greetings, three individuals killed a 19-year-old Lithuanian Benediktas Jonušis with billiard cues. The young man died, because he refused to use the German way of greeting – Heil Hitler – and either hit or pushed another person who responded to his „good evening“ by heil. In the late 1938, Rifleman Jonas Martinaitis informed that he had been stopped by a stranger and demanded to greet the latter with Heil Hitler by means of threats; he asked for instructions how to behave in such cases. Another candidate to Riflemen Jonas Kočinas from the Kavolių Platoon was similarly stopped by a stranger and threatened with a weapon to greet him Heil Hitler; however, Kočinas took the weapon away from the attacker and brought it to the Platoon Commander. The incidents of that nature led to the situation when on 20 January 1939, on the eve of withdrawal from Klaipėda, the troops were directed by Brig.Gen. Stasys
Raštikis, the Commander of the Lithuanian Armed Forces, to accept the greeting of Klaipėdians by raising an arm and saying *Heil!* as a local custom and, when dressed in a uniform, to respond in compliance with the statute, and when dressed in civilian clothes, either in a way accepted in Lithuania Major or in compliance with the Klaipėdian custom (Jokubauskas, 2013). Thus, even the military structures of Lithuania capitulated to the Nazis, and the autonomic Klaipėda Region gradually turned into a „National-Socialist island“ where the positions of Lithuania weakened (Vareikis, 2009a).

Those were just examples to demonstrate the tension in the Region. The epilogue followed in 1939, when Germany presented an ultimatum and demanded that Lithuania gave up the Klaipėda Region as historically German. The daily *Vakarai* on 19 March 1939 noted that tailors in Klaipėda were extremely busy making new Klaipėda Region and Germany flags with swastikas: one of them, together with his apprentice, made as many as 250 flags overnight. The newspaper stated that on that day „there are many more flags with swastikas in the streets. The city is boasting green-white-red and German flags“ (Klaipėdos nuotaikos, 1939).

Germany occupied the Klaipėda Region in March 1939 with the military units, stationed in East Prussia, and the navy (Vokiečių karinė veikla, 1940). It prepared for the occupation of the Klaipėda Region very carefully. Adolf Hitler ordered *Wehrmacht* to be prepared for the occupation of the Region as early as in October 1938. In Königsberg, the headquarters were set up to take care of the annexation of the Klaipėda Region, and the meetings of Ernst Neumann and politicians of the Reich took place there. The Klaipėda SA (Germ. *Sturmabteilung*) storm troopers were trained there, and military instructors were travelling to the Region from East Prussia (Meindl, 2007). As the Lithuanian Army were urgently evacuating, and some of the institutions got trapped, the control of the region and the city was taken over by the SA troops. The barracks were besieged by crowds of the local people, who broke into the barracks territory flinging insults and threats and had to be driven off. Adolf Hitler arrived at the city, already controlled by groups of the local separatists, with a flotilla of 43 vessels and 30 military aircraft for a short visit: to make a speech from the theatre balcony. An agreement was imposed upon and dictated to Lithuania, while the great powers (France, Great Britain, Japan, and Italy were guarantors of the Klaipėda Region status in Lithuania), in order not to provoke Germany (or even acting already as its allies), kept quiet and did nothing to stop the aggression.

In the years 1935-1937, Lithuania was shaken by the farmer strike in the Suvalkija Region. The strike was launched due to a number of causes: a lack of democracy, restrictions of civil rights, and mainly by economic recession. The most notable centres of the farmers’ unrest were the counties of Marijampolė, Vilkaviškis, Šakiai, Seinai, Alytus, Trakai, and Raseiniai. The strike did not directly spread to other places of Lithuania, however, it had supporters all over the country. Three stages of the strike could be identified that differed in their intensity, forms of the struggle, and the organisational character. Stage 1 started at the end of May in 1935, when the movement just began to be organised, and lasted until mid-December of the same year. The main goal of the farmers’ unrest was to demand the improvement of the economic situation, and it was pursued by boycotting towns and not supplying them with agricultural produce. Political requirements were also formulated: to organise national elections. The forms of the struggle typical of that stage included propaganda through leaflets, destruction of telephone poles, forced closing of dairies, threats, arson, and shooting at those who refused to support farmers or the representatives of the local governments. The first stage of the strike stood out by massive pickets of farmers on the roads, demonstrations or meetings, and armed clashes with the police. Stage 2 included the late 1935 and the August of 1936. It was less intense, and the character of the struggle changed: no more mass meetings were held, and terrorist actions were more popular than in Stage 1 (such as destruction of telephone and telegraph wires, fires, and shooting at people who refused to support strikes). The movement became more conspirational and secret. Stage 3 that started in the autumn of 1936 was characterised with weak resistance manifestations. It ended in the autumn of 1937. During that period, only the former strikers undertook the organisation of new strikes, kept in touch with the political opposition, and looked for the ways to unite, however, their attempts were unsuccessful.

The Lithuanian press of that time, controlled by the power, offered three versions: the first one of the strike being fuelled by Germany, the second, by Communists, and the third, by the opposition parties (Kuodys, 2013). True,
the traces of those groups of interest could be detected, however, they neither initiated the unrest nor were very popular with the farmers who went on strike: they just tried to take advantage of the situation and to escalate the tense situation in Lithuania even more. During the farmer strike, in many places of the Užnemunė (the area on other side of the Nemunas), the leaflets of different content were secretly distributed (put up in public places, etc.). They were prepared and distributed by the members of the so-called „farmers’ unities“ (at the beginning of the strike), of the Lithuanian Communist Party, and the Iron Wolf organisation. In some cases, the members of the Lithuanian Peasant Nationalist Party and the Lithuanian Youth Union also participated in the production and/or the distribution of the leaflets. Even if the style and rhetoric of different leaflets varied, they all aimed to incite people’s dissatisfaction with the then government. The leaflets spoke out against the then nationalist regime with President Antanas Smetona and Prime Minister Juozas Tubelis in the forefront. In most of the leaflets, farmers were encouraged to disobey the government, not to pay taxes or loans to banks, and not to serve in governmental jobs (as elders of villages or heads of rural administrative districts), etc. Part of the leaflets questioned the legitimacy of the government (Balkus, 2013). The government took advantage of the martial law to suppress not only the opposition, but also the farmers’ strikes. For their direct suppression, the police and military commandants were called, assisted by Riflemen and the state security agents (Černevičiūtė, 2013). In 1935-1936, military commandants punished 882 strike participants; 456 of them were taken to courts. For terrorist acts, 5 farmers were sentenced to death. Another four were shot dead in the clashes with the police. During the riot, 5 peasants and 3 policemen were wounded (Truska, 1996). In the 30s of the 20th century, all Lithuania was like a powder keg that could blow up at any time. However, one of the demands of the strike participants – to organise the Seimas (Parliament) elections – was partially implemented (Blažytė-Baužienė; Tamošaitis; Truska, 2009), even though a democratic character of the 4th elections to the Seimas was questionable.

Next to the above discussed strikes, uprising, and unrest that destabilised the state of Lithuania from within in the interwar period, one could also note the fact that part of the cultural elite and of the general public were affected by socialism and had leftist inclinations (Tamošaitis, 2010). The underground Communist Party was active even in the army; on the Comintern resolution, it was instructed to expand its activities in the army and to increase its influence there (Kariuomenės štabo, 1935). In the army, just like in all the society, pro-German and pro-Polish forces were very active. In Lithuania, the underground press of various types, leaflets, and espionage were widespread (Ir taikos, 1937–1940). In 1935, a secret circular of the Armed forces Staff commented on the operation of the neighbouring countries in Lithuania: „Their favourite method of work is to sow misunderstanding and cause distrust among Lithuanians. They would like to cause turmoil inside Lithuania and thus weaken our resistance at the international level, and simultaneously to mask their aspirations with regard to Lithuania“ (Kariuomenės štabo 1935).

The USSR and German Representative Offices in Kaunas and their Consulates in Klaipėda were implementing the interests of those states in Lithuania and supporting the anti-state, underground forces. The intelligence, agents of interest, or convinced Communists or National Socialists both collected information about the Lithuanian armed forces and waited, or occasionally sought, changes in the political regime or even the statehood status in part (the Klaipėda Region) or in the whole of Lithuania.

4. The economic factor

It has to be noted that due to the above-discussed protracted frozen conflict with Poland, the administrative line (border) between Lithuania and Poland was closed, and therefore the economic relations were minimal. As a result, the port of Klaipėda was strongly affected, as the trade of rafting by the Nemunas River from the forests of the former Province of Vilnius that had boomed before the First World War, as well as the export of the timber processed in Klaipėda, completely stopped (Žukas, 2010). Therefore, the port of Klaipėda had to reorient itself and from the raw timber export specialisation to transform into a wide-profile Lithuanian state port exporting great amounts of already processed products. Thus the port of Klaipėda ceased to be a transit port, and Lithuania economically closed about one third of its border and strongly increased its dependence on Germany (transit to the West via it and the trade). Lithuanian did not experience any economic difficulties due to all that as long as it had good relations with Germany which had a great demand for imported agricultural products and raw materials.
As stated by Zenonas Norkus, in the mid-20s of the 20th century, due to false economic estimations, the Lithuanian Government introduced strict austerity measures which led to the collapse of democracy through a military coup. Democracy failed in Lithuania not because of the left-wing excessive spending, but because of their excessive saving. It was the leftists who were saving, and the fruits of their savings policy were enjoyed by the enemies of democracy – the Nationalists who did not have any longer to take strict austerity measures (Norkus, 2016). And it was in the years of the right-wing regime, in 1927, that the „golden age“ started which lasted until the end of 1930. At that time, Lithuania’s exports increased by 25.3 %, from 258.4 mln. Litas to 323.8 mln. Litas. However, the situation changed at the beginning of the 30s of the 20th century, when Lithuania was faced with a complex of economic problems:

1) a global economic crisis (the Great Depression);
2) economic sanctions of Germany;
3) currency devaluation in part of the countries of the world (trade partners);
4) the loss of the only commercial port and the industrial city of Klaipėda;
5) disruptions in the supply of raw materials and oil products (fuels);
6) admission and maintenance of war refugees, assistance to the population of the Vilnius Region in 1939-1940.

The Great Depression hit the Lithuanian economy, too (Butkus and Černiauskas, 2015), while the period of 1931 to 1935 could be seen as the time of hard challenges to Lithuanian economy and its financial system. Especially painful was the fall in the prices for agricultural products (Terleckas, 1992): in 1929, a centner of rye cost 22.8 Litas, while in 1935, only 5 Litas; a kilo of butter cost 6.6 and 1.7 Litas, respectively, etc. (Truska, 1996). In order to mitigate the consequences of the crisis, the Government reduced the prices for the rail, postal, and telegraph services, and the prices for some goods. Over the period of 1930 to 1935, from the state budget, farmers were paid 103.7 mln. Litas of premiums for the exported butter and pigs (Terleckas, 1992), while in 1930-1939, the total payments for the export of agricultural products (that presently would be called direct payments to agricultural producers) amounted to 172.7 mln. Litas (Vaskela, 1998). Thus, over a decade, the promotion of the export of agricultural products was assigned the amount of funds from the state budget equal to that which had been planned for the military armaments in the implementation of a seven-year plan. All that made a negative impact on the national economy and the welfare of the population and led to a huge deflation when the domestic consumer price index significantly dropped. The lowest overall price index was in 1935, when it accounted for only 39.2 % (in 1924 = 100 %) of the level ten years ago (Meškauskas et al., 1976). Moreover, Lithuania in the 30s of the 20th century did not devaluate its national currency, which reduced the prices in the domestic market and made export more difficult or reduced the benefits to be derived from the exports; the devaluation of the British pound of sterling hit especially hard. Such kind of the national monetary policy was useful only to receivers of regular income (civil servants) and moneylenders, but hit farmers and other small producers (Vaskela, 1998).

According to Norkus, „Lithuania in 1938, just like in 1913, remained the most backward Eastern European country“, although in the period between 1924-1938, it surpassed its neighbours by an average annual economic growth rate (4.3 %). An average annual GDP growth in Finland during that period was 3.5 %, in Latvia, 3.2 %, and in Estonia, 1.9 % (Norkus, 2015). However, in the 30s of the 20th century, Lithuania was faced with the problems of the global economic crisis and an embargo on Lithuanian imports imposed by Germany, which was even more exacerbated by the state’s refusal to devaluate the national currency Litas, following the example of a number of other countries. Historian Liudas Truska wrote that in 1933, farmers’ debt exceeded 460 mln Litas (which was almost twice than an annual state budget), and the insolvent debtors’ assets were described and sold at auction. In 1930, 1,050 farmers’ auctions were held, in 1933, 2,908, and in 1934, 2,508. The prices of agricultural products fell 3 to 4 times, and of most of the basic industrial products, just by 20–30 %. For the crisis-crushed peasants, „medical treatment, a priest, a lawyer, public transport, and industrial goods“ were inaccessible. The decrease in the state budget revenues meant cutting down on expenses: schools were closed, the number of university students was reduced, etc. (Truska, 1996).
To quote Norkus (2014):

"As the crisis struck the economy of Germany, Lithuania’s main foreign trade partner, in order to defend its own farmers, the German Government introduced such high protective tariffs that they could not be overcome even by live animals and other raw agricultural products very cheaply exported to that country from Lithuania. Starting with 1931, the economic relations between Germany and Lithuania were further complicated by economic sanctions imposed on Lithuania by its great neighbour for its „inappropriate“ policies in the Klaipėda Region, which turned into Lithuania’s economic boycott in 1934-1935. Almost the only hope for Lithuanian exports was the market of Great Britain, however, it was too far away to export raw animal products there“.

Lithuania used to export agricultural raw materials and products. The predominating goods were livestock and meat, butter, flax, and tow (Lietuva, 1990). In 1930, Lithuania exported to Germany 156,000 pigs, in 1931, 109,000, and in 1933, only 21,800 (Vaskela, 1998). However, due to the Neumann–Sass trial in 1934 (the first case in Europe when criminal responsibility was applied by the court to National Socialists), Germany essentially closed its frontier to Lithuania’s agricultural products. In 1933, Lithuania exported goods to Germany for 52,4677 mln. Litas, while in 1935, merely for 5,4352 mln. Litas, and only in 1938, the export (62,493 mln. Litas) reached the former level, i.e. from 32,75 % fell to 3,57 % and rose again to 26,8 % (Table 1). Due to the trade embargo, Lithuania was faced with enormous overproduction. As stated in the memoirs of Vaclovas Šliogeris, former aide of the President of the Republic, in 1934:

„In Lithuania, the notorious „geese eating“ began, when we had to consume the geese intended for the export by ourselves. To solve the problem of the geese overproduction, the Government ordered all the public sector staff to buy geese. The amount depended on the salary, and a special procedure was prepared and published to regulate the consumption of geese“ (Aplinkraštis žąsų, 1934).

Lithuanian diplomats sent the message from Berlin to Kaunas to the effect that:

„no good relations between Lithuania and Germany were possible until the Klaipėda Region was returned back to Germany“ [Germany twice refused from the territory by signing international treaties: the Versailles Peace Treaty in 1919 and the Border Agreement with Lithuania in 1928, in accordance with which the Nemunas River served as a border - V.J.J (Lietuvos atstovybė, 1933).]

In 1934, German Envoy in Kaunas Erich Zechlin warned that, unless an agreement was reached on the Klaipėda Region at the political level, Lithuania was to experience economic losses in relations with Germany. President Antanas Smetona responded by quoting the story about Esau from the Old Testament (Genesis, 25: 30-34), when

„Esau sold his birthright to Jacob for a bowl of lentil stew“ (Pro Memoria, 1934).

Lithuania’s rights to Klaipėda were based on its belonging to the area of the Baltic tribes before the Orders’ conquest and establishment there. Moreover, a substantial part of the population in the Klaipėda Region were ethnic Lithuanians – Prussian Lithuanians, differing from the rest of Lithuanians by the religion, culture, and several hundred years of political affiliation, and united with them by the origin and the language (for more information about Prussian Lithuanians, see: Pocytė, 2002). In addition, as mentioned above, Germany legally had twice refused from the territory in favour of the Entente and Lithuania.

However, the economic crisis and the sanctions imposed by Germany had a huge impact. The total value of the national export fell twice, and to Germany, 37 times. The revenues of the Lithuanian state budget, by prices of the current years, fell by a quarter from 1931 to 1934. Before the crisis, the state budget was the largest in 1931 (335,3 mln. Litas), and recovered only in 1938, when it amounted to 366,5 mln. One can calculate that, should the state budget in the period of 1932–1937 have stayed at the level of 1931, over the six years of the economic recession, another 350 mln Litas would have been received by the budget (in 1932–1937, the state budget was 1662,4 mln. Litas, and should the annual revenue have stayed at the level of 1931, it would have been 2011,8 mln. Litas (335,3 mln. Litas x 6 years)). A theoretical assumption follows that the global economic crisis and Germany’s sanctions „robbed“ Lithuania of two military rearmament programmes, as in the years 1935–1941 (a seven-year plan), 175 mln Litas had been planned for the army modernisation (25 mln Litas annually).
The relationship between the export, the German sanctions, and the state budget can be revealed by means of the correlation coefficient calculation method, although the method does not reveal causality; moreover, the correlation may be random, as „the coefficient of any size can be obtained also due to the random overlapping of variable values“ (Norkus and Morkevičius, 2011). The value of correlation coefficients up to 0,36 is considered to be a weak correlation, from 0,36 to 0,67, an average, 0,68 and more, a strong, and over 0,9, a very strong correlation (Taylor, 1990). Based on that classification, the correlation between the total Lithuania’s export and its export to Germany is very strong \( r = 0,91 \), and the correlation between the export and the state budget is \( r = 0,71 \), i.e. strong. An average correlation \( r = 0,43 \) was established between the export volume to Germany (in mln Litas) and the Lithuanian State Budget (in mln Litas). The calculation was done by Microsoft Office Excel 2003 (function), in accordance with the formula:

\[
\text{Correl}(X, Y) = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 \sum (y - \bar{y})^2}}
\]

Table 1. Lithuania’s export and the state budget in the years 1930–1938

<table>
<thead>
<tr>
<th>Year</th>
<th>Export, in mln. Litas</th>
<th>State budget in mln. Litas</th>
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<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Inclusing to Germany</td>
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<tr>
<td>1930</td>
<td>333,739</td>
<td>199,925</td>
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<td>1931</td>
<td>273,119</td>
<td>125,426</td>
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<tr>
<td>1932</td>
<td>189,126</td>
<td>74,018</td>
</tr>
<tr>
<td>1933</td>
<td>160,227</td>
<td>52,468</td>
</tr>
<tr>
<td>1934</td>
<td>147,245</td>
<td>31,819</td>
</tr>
<tr>
<td>1935</td>
<td>152,268</td>
<td>5,435</td>
</tr>
<tr>
<td>1936</td>
<td>190,485</td>
<td>20,599</td>
</tr>
<tr>
<td>1937</td>
<td>208,325</td>
<td>34,479</td>
</tr>
<tr>
<td>1938</td>
<td>233,198</td>
<td>62,493</td>
</tr>
</tbody>
</table>

(Norkus, 2014; Statistical Bulletin, 1930–1939)

The loss of Klaipėda in March 1939 was another severe economic blow when Lithuania, by losing the region, also lost 150 mln. Litas, including 40 mln. Litas invested by the state in the economy. The problems also arose related to the housing of the evacuated institutions (Terleckas, 1992). Due to the loss of Klaipėda, the state income decreased by 38 mln Litas, therefore, the budget was revised and reduced from 367,9 mln to 341,8 mln Litas. Moreover, trade problems were faced, as 70–80 % of the Lithuanian foreign trade was carried out via the port of Klaipėda. When Vilnius was recovered in 1939, the country had to deal with social problems and to support the local population, therefore, the export of Lithuania decreased by 25 mln Litas, and the budget expenses increased. On 23 October 1939, a forced emergency Vilnius loan of 50 mln Litas was declared, and the state budget was again increased to 363,3 mln. Litas.

The economic life was disrupted by the onset of the Second World War in 1939. The Lithuanian export fell, it became difficult to get raw materials, and damage was caused by the seizure of Lithuanian ships by the fighting states and the requisitioning of goods. Thus, e.g., Lithuania lost 2,871,3 tons of fuel (kerosene, petrol, and gasoline) purchased in the USSR, as France detained a tanker following from Batumi to Riga in the Mediterranean. The British Goldez company refused to deliver the sugar purchased by Lithuania (Žepkaitė, 1990), and the new weaponry purchased abroad never reached the country (Jokubauskas, 2014). A shortage of raw materials raised fears that the protracted war might result in getting no goods or raw materials from abroad. Given the situation, the army received orders to efficiently use the resources and to extend the terms of article use as long as possible (Kariuomenės tiekimo, 1940). Due to international trade disorders, the Lithuanian food processing industry had no more tin in 1940 and could no longer produce tinned food for the army, therefore, the tinned food in the
storehouses were to be kept as inviolable reserve, as the stock could no longer be supplemented (Kariuomenės tiekimo, 1940). The risk that in case of war Lithuania was not going to be reached by imported goods, and especially energy resources, i.e. fuel, was one of the reasons that prevented the army’s motorisation. The motorised units would have been paralysed as they depended on imported fuels (Jokubauskas, 2015).

Due to the outbreak of the Second World War, Lithuania was faced with a refugee admission problem. In 1939-1940, it had to provide assistance to the interned Polish war refugees by maintaining them (altogether, over 40,000 individuals were admitted, including 14,000 military men and about 27,000 civilians; quite a few of them were in the Vilnius Region recovered in the autumn of 1939). The total of 8 mln Litas were spent on that; the Lithuanian Government allocated 2, 54 mln Litas, and the rest came from international organisations and foreign states) (Surgailis, 2005; Strelcovas, 2010). Thus, the refugees accounted for 1,5% of the population of the country, and their maintenance cost about 0,7% of the state budget, apart from the funds received from organisations and the foreign aid.

In the interwar years, Lithuanian society experienced the problems of social exclusion and poverty. In 1940, Director of the State Security Department Augustinas Povilaitis emphasised, next to the social exclusion problem, also the issue of excessive alcohol consumption, as „numbers of workers and their families suffered from poverty“ (Povilaitis, 1940). The press rebuked: „we loved to get closed in our offices, farms, or vegetable gardens and dawdle there, without looking around and worrying about our towns being poor and rickety, and our roads dirty and muddy“(Į darbą, 1939). However, poverty and social exclusion were actualised in a broader context, i.e. that of the statehood preservation. In 1940, several months before the Soviet occupation, concerns were expressed about the impact of a lack of justice and poverty on the preservation of statehood:

„And finally, an important factor for the preservation of independence is the implementation of social justice all over the country, in other words, a fair distribution of wealth and earnings. If justice is said to be the basis of the state, the lack of clear justice in the social sphere in present times has a very, very negative impact on the general public. It is an indisputable fact that the greater part of wealth and capital today is in the hands of a few people. Social difference is less expressed in rural areas, however, in the urban ones it is felt quite keenly. Therefore, in this direction, clear, resolute, and just steps are to be made to have the wealth and earnings more fairly distributed between all the population of the country“ (Senkus, 1940).

The situation was very aptly defined in the Trimitas journal in 1939:

„When no gap is left between the rich and the poor, the overeating and the hungry, the idlers and the overwrought ones, and the educated and the ignorant, the homeland and all its children will feel good“ (Markonis, 1939).

The problems of social inequality and exclusion were seen and publicly discussed, and they were considered to be important in the state security context.

Conclusions:

The revealed range of threats to the security and stability of the state of Lithuania led to the conclusion that, in the interwar period, Lithuania was faced with a number of indirect actions of unfriendly-minded countries, based on the weaknesses and problems of Lithuania, in addition to direct conventional military threats. Three blocks of action against the state of Lithuanian can be identified:

- Economic measures: economic warfare (embargo and sanctions) which resulted in the exacerbation of the political, social, and economic national problems;
- Military operations: demonstration of the military power, the de jure-used non-state military formations or fighters trained in the neighbouring countries being sent over, and the use of paramilitary formations of the local residents, hostile to the state of Lithuania, for taking over the control or destabilisation;
- the ideological and informational impact on the society of Lithuania seeking to break its will for resistance and to form and maintain an underground network of agents of information.
The economic sanctions of Germany did not seek to destroy Lithuanian economy; they were used as a measure of impact in the pursuit of their own goals in the Klaipėda Region. Therefore, that was an example of indirect action which both made Lithuania retreat in the case of the sentenced Social Nationalists in the Klaipėda Region and partially contributed to the outbreak of another additional phenomenon: the farmers’ strike in the Suvalkija Region and its consequences in Lithuania. Germany and Poland, under the cover of paramilitary forces, uprisings of military units, or armies without states, pursued their political objectives through military means in order to avoid political consequences on the international arena and not to experience the sanctions or the pressure from the Western allies.

Agents of influence, underground organisations, and spies and distributors of rumours and disinformation sought by their activities to undermine public confidence in their own powers and in their state and competently used the weaknesses of the authoritarian regime for that purpose. On the one hand, an underground platform for a new political regime was developed; on the other hand, the public atmosphere of the transience of the state of Lithuania, its helplessness against the powerful neighbours, and therefore its unavoidable collapse was created.

The total range of the threats for the national security and statehood faced by Lithuania in the interwar period is not and, of course, can not be identical to the challenges of the second decade of the 21st century, however, it boasts some clear and tangible parallels. Naturally, there is a number of aspects in which the restored Republic of Lithuania essentially differs from the interwar Republic of Lithuania. The key difference is the 21st century Lithuania belonging to NATO, the most powerful global alliance of collective defence, and being a member state of the European Union, while in the interwar period, it did not have any real (mutually committed) military allies.

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TOWARDS SUSTAINABLE ECONOMIC DEVELOPMENT VIA SOCIAL ENTREPRENEURSHIP

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Abstract. This paper argues that social enterprises (SE) in EU Member States share at least following common features: the dominance of a social or societal objective over market goal, an apparent social responsibility, particularly in the field of profit distribution. However, numeric limits for the criteria of SE identification remain ‘unclear’: in the majority of cases there are no comprehensible requirements regarding the employment of vulnerable groups and the reinvestment of profits into social projects. Bulgaria, Croatia, Czech Republic, Finland, Italy, Lithuania, and Slovakia advocate accuracy and precision in dealing with the terminology surrounding SE regulatory and legal acts to the greatest extent. Being a significant facilitator of sustainable development, SE growth has a close relationship with certain macroeconomic factors. Our correlation and regression analysis clearly proves that there are certain factors of financial and social environment which have the greatest impact on the increase of the number of SE per 10,000 population, namely: Monetary Freedom, Income Distribution and Helping a Stranger. The first two factors show the impact of government regulation quality in business relation, including the links between employers and employees. The latter factor demonstrates an average social perception of so-called ‘inclusion ideas’ in different societies.

Keywords: social entrepreneurship, sustainable development, market factors, government regulation


JEL classification: J21, M38.

1. Introduction

The concept of social entrepreneurship has emerged as a response to the dominance of tough economic concepts aimed at maximizing profits which remained the main feature of the enterprise efficiency for a long time. As an effective tool to deliver policy objectives in service delivery and social inclusion, social enterprises are not only one of the best and most civilized manifestations of the welfare of sustainable state (Urbaniec, 2015; Sun, et al. 2015; Streimikiene et al., 2016; Samašonok et al. 2016; Boonyachut, 2016; Raudeliūnienė et al., 2016 Dobele et al., 2015; Mroczek-Czetwertyńska & Czetwertyński, 2013; (Smékalová et al. 2014; Kljucnikov et al. 2016; Stjepanović et al. 2017; Monni et al. 2017; Dobrovolskienė et al. 2017; Tetsman et al. 2017) and social economy (Bartoš et al., 2015; Štimac & Šimić, 2012). In fact, they perform an important economic mission: they create jobs for individuals who have been passive recipients of state aid or for various reasons have found themselves ‘on the verge’ of society. This approach does not only ensure the chances of social activity and decent life for individuals, it also allows solving macroeconomic issues of budget support for vulnerable social...
categories as they change from social assistance recipients to active taxpayers through employment and obtaining income from it (Gawel, 2010; O’Leary, 2015; Sulphey, Alkahtani, 2017; Lace et al. 2015; Tvaronavičienė, 2016; Grinevica et al. 2016; Teletov et al. 2017).

In today’s economy despite the social significance of social entrepreneurship its main features remain uncertain and controversial (Bernat et al., 2016). This fact hinders the development of mechanisms of SE state support: if there are no clear criteria for the selection of those companies among other groups, it is impossible to provide them with some economic preferences that will stimulate their further development. Furthermore, other companies which despite receiving the formal status of ‘social enterprise’ may actually have a dominant market objective can take advantage of these benefits and incentives. In order to find and promote the best European practices of social entrepreneurship we have analysed the definitions and boundaries of formal SE identification in EU Member States. At the same time in order to assess SE economic performance against the factors of social, institutional (Delibasic, 2016; Draskovic et al., 2017) and market environment (Sobeková Majková, et al., 2014; Veljkovic et al., 2015) we have conducted correlation analysis and interaction modelling. The theoretical generalizations and methodological principles for selecting factors that affect the SE development suggested in this in-depth study can be used as the source for improvement of SE legal support and for the application of the most effective state leverage in those countries where such activity has not been formed yet.

2. Literature Review

The evaluation of SE performance and operating conditions requires reliable statistical data. This task is complicated due to the lack of recognized methodological principles that would be the basis for the SE allocation among other companies and the introduction of mechanisms of state support for this particular type of business.

As of today, methodology and methodical bases for monitoring the number of social enterprises mainly exist in the form of some conceptual proposals for individual countries. In most cases they are not even enshrined in law however they are commonly used in the society to describe this type of social innovation in the field of employment. Simultaneously, in some countries, mainly in those with high level of development, SE become more common, therefore requiring clarification of their nature and unifying criteria for their identification, at least within the EU. With some differences in SE practices, nowadays most countries more or less use the altered SE conception, which European prototype can be considered a specific legal form for ‘social co-operatives’ that was legislatively adopted by the Italian parliament in 1991 (Defourny, Nyssens, 2010, p.33).

In its modern sense the term ‘social enterprise’ was introduced to the European official terminology by the European Commission in 2011 and since then it has been used to cover the following types of business (European Commission, 2011):

– those for which the social or societal objective of the common good is the reason for the commercial activity, often in the form of a high level of social innovation (Kozubiková & Zoubovková, 2016),
– those where profits are mainly reinvested with a view to achieving this social objective,
– and where the method of organisation or ownership system reflects their mission, using democratic or participatory principles or focusing on social justice.

The methodological principles of mapping social enterprises and their eco-systems created by experts of the European Commission as part of a special review of social entrepreneurship in 28 EU Member States and Switzerland (April 2013) can be viewed as the beginning of the current methodology for assessing the SE dynamics and performance. According to the results of this study (European Commission, 2014), a common feature of SE is the prevalence of micro and small entities with employment below 50 employees and turnover around EUR 1 million. However, further analysis of the characteristics of SE revealed in this study suggests there is a substantial difference in social positions regarding the characteristics that can identify SE, as well as significant differences in their legal forms (Table 1).
### Table 1: Differences in Perception, as well as Organisational and Legal Forms of Social Enterprise across EU

<table>
<thead>
<tr>
<th>Country</th>
<th>SE Concept is / not Legally Adopted (+ / -)*</th>
<th>Forms</th>
<th>Numeric Criteria for Identifying SE</th>
<th>Organisational and Legal Forms Commonly Used by Social Enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>Work Integration Social Enterprise (WISE), or more precisely, SÖBs and GBP</td>
<td>There are no criteria</td>
<td>Socio-economic enterprises; NGOs** / Non-profit employment projects/companies</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>Social purpose company, WISE</td>
<td>There are no criteria</td>
<td>Enterprises; NGO; NPOs; Foundations serving a public interest</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>+</td>
<td>Specialised enterprises for people with disabilities</td>
<td>- They regularly invest more than 50 per cent of the profit in the achievement of social aims;</td>
<td>Cooperatives; Associations; Enterprises; Foundations; Enterprises set up by Non-profit legal entities (NPLEs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Over 30 per cent of their staff comprises vulnerable people.</td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>+</td>
<td>Civil society organizations engaged in business, their subsidiaries</td>
<td>- At least 25% of the income is generated through economic activities;</td>
<td>NGOs; Social cooperatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and cooperatives</td>
<td>- At least 75% of the profit or surplus must be re-invested in the enterprise’s social purpose.</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>volunteer/ NGO organisations, private companies or cooperatives</td>
<td>There are no criteria</td>
<td>Limited Liability Companies; NGOs (incl. Non-profit companies, Associations, Foundations, Clubs)</td>
</tr>
<tr>
<td>Czech Re-</td>
<td>+/-</td>
<td>Social Enterprises satisfying The Thematic Network of Social Economy</td>
<td>- At least 10% (30% for WISE) of total revenues has to come from sales of goods and services;</td>
<td>Social cooperatives, Civic association, Public benefit organisation; Limited liability companies</td>
</tr>
<tr>
<td>public</td>
<td></td>
<td>(TESSEA) definition</td>
<td>- They must reinvest at least 51% of profit into development of the social enterprise and/or</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>implementation of socially beneficial aims;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- At least 30% of employees must be from groups disadvantaged on the labour market.</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>+</td>
<td>Enterprises with social purpose</td>
<td>There are no criteria</td>
<td>Associations; Foundations; Company limited by shares (“CLS”); NGOs</td>
</tr>
<tr>
<td>Estonia</td>
<td>+/-</td>
<td>-</td>
<td>- Entrepreneurial revenue up to at least 35 per cent of the total income;</td>
<td>Associations; Foundations; hybrid organisations (foundations association); Limited companies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- All profit should be reinvested into the organisation.</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>+</td>
<td>WISE; Businesses owned by TSOs (clear social mission statement); Social</td>
<td>The enterprise uses over 50 per cent of its profits towards meeting social objectives.</td>
<td>Limited companies, Cooperatives, Foundations and Associations with profits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enterprise Mark holders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>-</td>
<td>Enterprise for the reintegration of economic activity (approximate to</td>
<td>There are no criteria</td>
<td>Public utility cooperatives, Non-profit organisations (associations and foundations) with commercial activities, Mainstream</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WISE)</td>
<td></td>
<td>enterprises</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>Public Benefit Company</td>
<td>There are no criteria</td>
<td>Limited companies; Associations; Foundations and Cooperatives; Enterprises with a social mission; Welfare organisations</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>Women agro-tourist cooperatives; Limited liability social cooperatives;</td>
<td>There are no criteria</td>
<td>Civic cooperatives; Rural cooperatives; Companies limited by shares</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social cooperative enterprises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>-</td>
<td>Social cooperatives</td>
<td>There are no criteria</td>
<td>Cooperatives; Non-profit companies</td>
</tr>
<tr>
<td>Ireland</td>
<td>+</td>
<td>-</td>
<td>There are no criteria</td>
<td>Company limited by guarantee (CLG); Company limited by shares (CLS); Unincorporated Association</td>
</tr>
<tr>
<td>Italy</td>
<td>+</td>
<td>- SE type A (cooperatives supplying social, health and educational</td>
<td>- They generate at least 70 per cent of its income from entrepreneurial activities having social</td>
<td>Mainstream enterprises; Cooperatives; Foundations; Associations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>services)</td>
<td>utility</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- SE type B (which is WISE)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Code</td>
<td>Criteria</td>
<td>Additional Details</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>+/-</td>
<td>There are no criteria</td>
<td>- Private Limited Liability Companies; Associations or foundations with a Public Benefit Organisation (PBO) status</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>+</td>
<td>Social enterprise by Law</td>
<td>- The employees who are attributed to the target groups account for at least 40 per cent of annual weighted average number of the employees on the staff list, and the number of such employees is not less than four;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SE of the disabled</td>
<td>- The employees who are attributed to the target group of the disabled account for not less than 50 per cent of the annual average number of employees on the staff list. Disabled for whom severe or moderate disability has been established – for not less than 40 per cent, and the number is not less than four.</td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td>+</td>
<td>Organisations that are labelled as a part of social/ solidarity economy</td>
<td>Associations (asbl); Cooperative companies (cc); Mutuals, Foundations</td>
<td></td>
</tr>
<tr>
<td>Malta</td>
<td>+/-</td>
<td>There are no criteria</td>
<td>NGOs/voluntary organisations; Cooperative societies</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>-</td>
<td>Work integration companies; ‘Social’ cooperatives</td>
<td>Associations; Foundations; Cooperatives; Private limited liability companies</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>-</td>
<td>Co-operatives for the disabled and blind; Social cooperatives; Professional Activity Establishments (ZAŻ); Occupational Therapy Workshops (WTZ)</td>
<td>NGOs or Non-profit companies; Cooperatives; Limited liability companies; Associations; Foundations</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>-</td>
<td>Private institutions of social solidarity</td>
<td>Foundations; Mutual Associations; Cooperatives, incl. Limited Liability Cooperatives</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>-</td>
<td>Mutual aid associations for pensioners; Law protected units - run by NGOs (Work integration for disabled people)</td>
<td>Associations; Foundations; Mutual help associations / credit unions; and Sheltered workshops run by NGOs</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>+</td>
<td>- At least 30 per cent of their workforce must constitute of disadvantaged jobseekers; - They reinvest at least 30 per cent of profits into creation of new job positions or into improving working conditions.</td>
<td>Non-profit organisations; Cooperatives; Municipality companies/local public enterprises</td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>+</td>
<td>- SE type A (which carries out (one or several) «social entrepreneurship activities» - SE type B (which is WISE)</td>
<td>Cooperatives; Institutions; Companies limited by shares</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>Social initiative cooperatives; WISE; Sheltered Employment Centres</td>
<td>Worker-owned companies; non-profit organisations with commercial activities</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
<td>WISE; Market-producing civil society organisations; Economically active civil society organisations</td>
<td>Limited Companies; Non-profit associations; Economic associations</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>+</td>
<td>Social Firms; Development Trusts; Intermediate Labour Market Companies; Community Businesses; Credit Unions; Charities Trading Arms</td>
<td>Companies limited by guarantee (CLG); Companies limited by shares (CLS, less frequently); Community Interest Companies (CICs); Industrial and Provident Societies; Limited Liability Partnerships</td>
<td></td>
</tr>
</tbody>
</table>

* (-) No official definition, de-facto their various types are commonly used in the society; (+/-) There are no institutionalised forms of social enterprise, but the concept is commonly used in the society.
** Non-profit organizations, including those conducting economic activity.

Source: Own compilations, based on (European Commission, 2014).
Basing on the above-mentioned practices of SE activity it is absolutely obvious that in their vast majority they are created as a response to the needs of vulnerable target groups. Hence one of the most developed forms of social enterprises in EU is Work Integration Social Enterprise (WISE). WISEs’ defining purpose is to help disadvantaged individuals who are at risk of permanent exclusion from the labour market, to integrate into work and society through productive activity, mainly through jobs, professional training and other types of assistance (O’Connor, Meinhard, 2014, p.6). They do this by operating businesses that produce and sell goods and services, and that employ these individuals in the production and sales of these goods and services. WISE is the most common form the social enterprises in Italy, Latvia, Lithuania, Poland, Slovakia, Slovenia, Hungary and the Czech Republic. SE is not only a common practice in these countries as well as in Bulgaria, Croatia and Finland, but their activity is carried out under clearly defined identification criteria enshrined in national legislation. For instance, over 30 per cent of SE staff in these countries comprises vulnerable people and as for the reinvestment of profits for social purposes, reinvesting at least 50% of profit into socially beneficial aims is the most common practice.

At the same time, one can see a much greater prevalence and clearer formalization of institutional and legal framework of social enterprises in new member states, mostly among post-socialist states. In many other countries, even with much higher economic growth and a greater prevalence of SE forms, this business often has no clear formal boundaries that is largely the result of market self-regulation and significant social capital of the societies. For example, so-called Community Interest Companies’ operate in the UK since 2005, and nowadays the principles of their activity have been transferred to most SE forms in EU. They are the most successful example of solution for problems in employment of vulnerable groups in the world, although without a very clear legal definition.

Apart from the presence or absence of clear identification restrictions, there are other inconsistencies on the understanding of the SE features in EU. In particular, in the relevant report (European Commission, 2014) there is a discussion regarding the following aspects: the justification of the companies’ division on ‘traditional’ and ‘social’ (Finland); balance between market and social objectives (Austria, Czech Republic, Netherlands); allocation of the dominant feature: the organization of the employment of vulnerable groups or volunteer activity (Denmark, Greece); the principle of participation in the company management (Czech Republic).

However, in any case these documents of the European Commission undoubtedly form the basis of modern approaches to SE identification. Their essence is reflected in the following main features, namely: social orientation, i.e. the organisation must pursue an explicit and primary social aim; high social responsibility, especially vector responsibility to society in solving the most complex social issues; willingness to maintain the chosen activity, including through reinvestment of a significant share of the profits.

3. Methodology and Research Method

Existing methodological differences in the features highlighting social enterprises in some EU Member States do not allow the scientists to operate totally objective information about their number, moreover their economic performance (profitability, growth and other assets) are not even monitored by EU or other group of countries. Therefore, it is very complicated to form the most favourable data array for statistical analysis due to the above-noted restrictions. Given this, in our further analysis we would view social enterprises per 10,000 population as a resulting indicator of the SE activity – defined on the basis of survey data (European Commission, 2014) with all the existing national limitations for SE identification.

In order to identify the factors of SE institutional environment which can have the greatest impact on their development, we used Multivariate Data Analysis technique with multistage test to assess connections in intermediate versions and final version of the model basing on VIF (variance inflation factor – hereinafter VIF). We have applied this approach with the use of methodical bases thoroughly set forth in the scientific work on econometrics, for example (Hair et al., 2007; Miles ,, Shevlin, 2001; Montgomery et al., 2015): unlike simple modifications of multivariate regression analysis this technique provides a more accurate result in the process of factor selection and model tests.
We selected the VIF us as a tool for constructing accurate models due to the fact that its use allows clear elimination of the variables that significantly correlate, moreover it allows to avoid collinearity of independent variables. The VIF can be expressed with the following formula:

$$VIF = \frac{1}{1 - R_j^2} \quad (1)$$

where $R_j^2$ is the coefficient of multiple correlation of the explanatory variable $X_j$ with all the other explanatory variables.

If the variables do not correlate, $VIF_j$ equals to 1; if the correlation is strong, $VIF_j$ is more than 10. In general, $VIF_j > 5$ is a critical level, indicating the need to partly or completely replace model factors. For higher accuracy of results it is worth using lower threshold values; in our case we believe that $VIF_j < 3$ shall be a reasonable level in the formation of the final model as it corresponds to the low level of factor collinearity and allows selecting the most important levers of influence on the SE environment.

The selection of factors that may have a significant impact on the external environment of SE has been carried out on the basis of relevant international reports (CAF World Giving Index, 2015; Global Competitiveness Report, 2015-2016; Human Development Report, 2015; Index of Economic Freedom, 2015; Sustainable Society Index, 2014). The comparability of the data time range was provided due to the existing time lag in collecting and publishing information on these macroeconomic indicators. Therefore there are no significant errors in the use of the data from the review of SE activity published in 2014.

The authors have used the following hypotheses in the process of factor selection:

1) initiation of a prospective SE depends on the quality of the environment of financial and infrastructural business support existing in the country in general, including the terms and conditions of intellectual potential management;

2) willingness to establish social business depends on the level of social interaction in society, justice in social processes, and social development.

The study has been conducted on the case study of EU Member States, given its current structure at the time of the research. In order to avoid redundant model testing procedures, the authors have completed a continuous assessment of the resulting indicator (the number of SE per 10,000 population) with each of the factors in these reports at the first stage of factor selection. As a result of calculating the pair correlation coefficients for the factors we have selected only those that had the strength of relationship (correlation ratio) of at least 0.4 and were compatible with the logics that we accepted while constructing hypotheses.

The application of the methods of correlation analysis is hampered to some extent by the existing inconsistencies referring to social enterprises due to the existence of differences in national models of their identification listed in Table 1. Thus, the obtained mathematical results on high (or vice versa) strength of relationship factor may cause doubts due to the use of this particular dataset. However, the use of other methods of economic and mathematical modelling of the relationship between the factors of institutional business support environment and its impact on the activity of establishing social enterprises is very limited at this stage of development of this business, as more reliable statistical data simply do not exist. The use of other methods for collecting information (such as own large-scale social surveys) by individual investigators neither will identify common patterns for the EU Member States, nor allow to use current best practices in other countries.

The fundamental difference between the further analysis of our results and other studies in this field lies in the fact of using the dataset on SE development at the macroeconomic level in relationship with the factors that characterize the quality and conditions of the country development from two different regulatory views: external (state) and self-regulation in society through appropriate changes in consciousness and development objectives. Furthermore, in our study, we use the information on the number of SE, identifying them from the dataset contained in the relevant report (European Commission, 2014), while taking into account the limitations
typical for each EU member state. By making an allowance for population as a basis of SE number comparison, we can eliminate demographic influences and acquire the most reliable results regarding the effectiveness of the impact of the factors regulating conditions of business activity on the SE development.

4. Results

In order to test the constructed hypotheses, the factors which meet the criteria described above with regard to inclusion into the model assessing the impact on SE development have been consolidated into two groups:

1) the factors that allow to assess the environment of financial and infrastructural business support (hypothesis 1):
   1.1) Monetary Freedom;
   1.2) Foreign Direct Investment Inflow (Millions);
   1.3) Quality of Management Schools;
   1.4) Country Capacity to Retain Talent;
   1.5) State of Cluster Development;
   1.6) Extent of Marketing;

2) the factors that characterize the social environment of SE development (hypothesis 2):
   1.1) Healthy Life (years);
   1.2) Income Distribution (ratio value);
   1.3) Buyer Sophistication;
   1.4) Volunteered Time (% answering yes);
   1.5) Helping a Stranger (%).

Numerical values of the factors have been used from the reports or reviews as follows: (CAF, 2015) – factor 2.5; (WEF, 2015-2016) – factors 1.3; 1.4; 1.5; 1.6; 2.3; (UNDP, 2015) – factor 2.4; (IEF, 2015) – factors 1.1; 1.2; (SSI, 2014) – factors 2.1; 2.2.

According to the Multivariate Data Analysis technique we have tested relationships with the elimination of the factors that so not correspond to the VIF values: the minimum reference value is VIF<5.0; however in order to obtain a more precise assessment results, we accepted VIF<3.0 as the maximum value limit. The factors that corresponded to such margins have been included with relevant $x_i$ symbols in the model testing relationships (see Table 2).

<table>
<thead>
<tr>
<th>Dependent Variable (Y)</th>
<th>VIF</th>
<th>Factors Selected for Modelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monetary Freedom</td>
<td>1.186</td>
<td>$x_1$</td>
</tr>
<tr>
<td>Foreign Direct Investment Inflow (Millions)</td>
<td>1.963</td>
<td>$x_2$</td>
</tr>
<tr>
<td>Healthy Life (years)</td>
<td>3.106</td>
<td>-</td>
</tr>
<tr>
<td>Income Distribution (ratio value)</td>
<td>1.733</td>
<td>$x_3$</td>
</tr>
<tr>
<td>Quality of Management Schools</td>
<td>5.356</td>
<td>-</td>
</tr>
<tr>
<td>Buyer Sophistication</td>
<td>6.491</td>
<td>-</td>
</tr>
<tr>
<td>Country Capacity to Retain Talent</td>
<td>9.467</td>
<td>-</td>
</tr>
<tr>
<td>State of Cluster Development</td>
<td>4.418</td>
<td>-</td>
</tr>
<tr>
<td>Extent of Marketing</td>
<td>5.238</td>
<td>-</td>
</tr>
<tr>
<td>Volunteered Time (% answering yes)</td>
<td>3.053</td>
<td>-</td>
</tr>
<tr>
<td>Helping a Stranger (%)</td>
<td>2.051</td>
<td>$x_4$</td>
</tr>
</tbody>
</table>

Source: Own calculations

Since the most important factors have been selected, Table 3 demonstrates their values for understanding of their future use in the models.
Table 3: Values of the Dependent and Independent Variables Used to Model the Impact of the Macroeconomic Environment on the SE Development

<table>
<thead>
<tr>
<th>Country</th>
<th>SE per 10,000 population, y</th>
<th>x₁</th>
<th>x₂</th>
<th>x₃</th>
<th>x₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>1.09</td>
<td>80.3</td>
<td>11082.65</td>
<td>7.67</td>
<td>55</td>
</tr>
<tr>
<td>Belgium</td>
<td>2.28</td>
<td>81.7</td>
<td>-2405.87</td>
<td>9.33</td>
<td>54</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>0.60</td>
<td>83.2</td>
<td>1450.39</td>
<td>7.33</td>
<td>38</td>
</tr>
<tr>
<td>Croatia</td>
<td>0.50</td>
<td>80</td>
<td>580.12</td>
<td>9</td>
<td>43</td>
</tr>
<tr>
<td>Cyprus</td>
<td>0.08</td>
<td>82.7</td>
<td>533.28</td>
<td>6.56</td>
<td>58</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0.53</td>
<td>81.2</td>
<td>4990.44</td>
<td>5.75</td>
<td>27</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.52</td>
<td>87.6</td>
<td>2083.22</td>
<td>7</td>
<td>53</td>
</tr>
<tr>
<td>Estonia</td>
<td>2.32</td>
<td>77.6</td>
<td>949.81</td>
<td>9.33</td>
<td>39</td>
</tr>
<tr>
<td>Finland</td>
<td>4.74</td>
<td>79.9</td>
<td>-1064.85</td>
<td>5.75</td>
<td>60</td>
</tr>
<tr>
<td>France</td>
<td>4.25</td>
<td>77.5</td>
<td>4875.46</td>
<td>8.33</td>
<td>39</td>
</tr>
<tr>
<td>Germany</td>
<td>1.40</td>
<td>81.5</td>
<td>26720.79</td>
<td>7.33</td>
<td>61</td>
</tr>
<tr>
<td>Greece</td>
<td>0.63</td>
<td>77.8</td>
<td>2566.52</td>
<td>8.67</td>
<td>38</td>
</tr>
<tr>
<td>Hungary</td>
<td>2.12</td>
<td>79.2</td>
<td>3091.06</td>
<td>6.25</td>
<td>35</td>
</tr>
<tr>
<td>Ireland</td>
<td>3.46</td>
<td>83.9</td>
<td>35519.72</td>
<td>9</td>
<td>59</td>
</tr>
<tr>
<td>Italy</td>
<td>5.95</td>
<td>81.2</td>
<td>16507.80</td>
<td>13.5</td>
<td>50</td>
</tr>
<tr>
<td>Latvia</td>
<td>0.07</td>
<td>83.8</td>
<td>808.35</td>
<td>9</td>
<td>33</td>
</tr>
<tr>
<td>Lithuania</td>
<td>0.45</td>
<td>81.2</td>
<td>531.12</td>
<td>9.67</td>
<td>33</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>4.49</td>
<td>80.7</td>
<td>30705.37</td>
<td>9</td>
<td>59</td>
</tr>
<tr>
<td>Malta</td>
<td>1.15</td>
<td>81.8</td>
<td>-2099.76</td>
<td>6.5</td>
<td>50</td>
</tr>
<tr>
<td>Netherlands</td>
<td>3.83</td>
<td>79.8</td>
<td>24388.87</td>
<td>11.5</td>
<td>59</td>
</tr>
<tr>
<td>Poland</td>
<td>1.41</td>
<td>81.3</td>
<td>-6037.74</td>
<td>8.67</td>
<td>51</td>
</tr>
<tr>
<td>Portugal</td>
<td>4.90</td>
<td>82.8</td>
<td>3114.02</td>
<td>15</td>
<td>51</td>
</tr>
<tr>
<td>Romania</td>
<td>3.62</td>
<td>77.3</td>
<td>3616.77</td>
<td>5.25</td>
<td>54</td>
</tr>
<tr>
<td>Slovakia</td>
<td>1.64</td>
<td>75.5</td>
<td>590.97</td>
<td>5.5</td>
<td>32</td>
</tr>
<tr>
<td>Slovenia</td>
<td>4.39</td>
<td>81.3</td>
<td>-678.58</td>
<td>8.33</td>
<td>50</td>
</tr>
<tr>
<td>Spain</td>
<td>4.70</td>
<td>81.3</td>
<td>39166.60</td>
<td>9</td>
<td>54</td>
</tr>
<tr>
<td>Sweden</td>
<td>3.60</td>
<td>85.5</td>
<td>8149.52</td>
<td>5.5</td>
<td>55</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>12.52</td>
<td>74.4</td>
<td>37100.90</td>
<td>14</td>
<td>63</td>
</tr>
</tbody>
</table>

Source: column 2 – own calculations based on (European Commission, 2014); the sources for columns 3 – 6 were previously given.

Basing on these data we have constructed the following models: four-factor and three-factor ones with all possible factor combinations. The three-factor model appeared to be the most statistically significant one and had the following relationship:

\[ y = f(x_1, x_3, x_4) \]  

(2)

Its full equation looks as follows:

\[ y = 25,9623 - 0.3893x_1 + 0.38475x_3 + 0.10543x_4 \]  

(3)

The model is statistically significant and adequately explains the impact of the factors upon the changes in the number of SE, which can be confirmed by given test results (see Table 4).

Table 4: Results of Model Testing

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple correlation coefficient</td>
<td>0.747</td>
<td>F-statistics:</td>
<td></td>
</tr>
<tr>
<td>Coefficient of determination</td>
<td>0.558</td>
<td>critical value:</td>
<td>3.39</td>
</tr>
<tr>
<td>F-significance of model (&lt;0.05)</td>
<td>0.0002</td>
<td>calculated value:</td>
<td>10.08</td>
</tr>
<tr>
<td>P-significance of factors (&lt;0.05):</td>
<td></td>
<td>t-statistics:</td>
<td></td>
</tr>
<tr>
<td>Y-intercept</td>
<td>0.02</td>
<td>t-value:</td>
<td>2.064</td>
</tr>
<tr>
<td>x₁</td>
<td>0.01</td>
<td>x₁</td>
<td>-3.066</td>
</tr>
<tr>
<td>x₂</td>
<td>0.01</td>
<td>x₂</td>
<td>2.676</td>
</tr>
<tr>
<td>x₃</td>
<td>0.01</td>
<td>x₃</td>
<td>2.969</td>
</tr>
</tbody>
</table>

Source: Own calculations
Fairly small numeric values of the indicators that describe the direction and force of the impact of each particular factor can be explained by the high sensitivity of each percentage point to the change of factors included in the model: even minor impacts which should result in minimal changes of the numerical factor values require major economic and social changes in the behaviour of society (all three factors) or changes in regulatory policy (considering Monetary Freedom and Income Distribution).

Therefore, among the chosen factors the higher impact of the social environment of social stakeholder interaction on the SE development is absolutely obvious. As we can see from the model the standards of income distribution adopted in the society can not be exclusively subject to state regulation, however they also to the large extent depend on the public will and awareness. Particularly, the Income Distribution factor characterizes social stability through the equality of the distribution of income of the richest 10% to the poorest 10% of the people in a country, while Helping a Stranger is a comprehensive indicator of the ‘giving behaviour’ in aspects of charity, volunteering, readiness to help for vulnerable people. The impact of these factors is logical because it is based on the fundamental idea of social enterprise: such business arises and develops in the places where society does not accept excessive inequalities in income distribution and where there is a high share of people willing to help in various forms: from charity to active own participation in social business projects.

With regard to Monetary Freedom, the impact of this factor has appeared to be unexpected to some extent. It is known that Monetary Freedom combines a measure of price stability with an assessment of price controls. Apparently, in the given group of countries the average inflation rate for the most recent three years (the first monetary freedom component) hasn’t had a significant influence upon the score for the monetary freedom. Thus, the values of this factor have mostly differed is in the ‘Price controls’ component. As one can see from the model, social enterprises mainly develop in the environments where government control over prices is significant due to the fact that, despite it contradicts economic logic of market regulation to some extent, it can get some benefits for the companies with weaker competitive position at the moment of their creation and at the beginning of their business activity. Social enterprises are basically such companies, and at least for today basing on the case study of the EU Member States we can state that the activeness of their development is directly determined by the timely state regulation of the Monetary Freedom aspects.

Conclusions

SE development is the result of the evolution of the social responsibility concept which mostly appears through individual initiatives through systemic actions of the state for their support and distribution. In most EU countries the activity of such companies is governed by the standard terms and conditions of business regulation without legal account of their specific features. It is obvious that in the developed European countries this practice is possible and has not required significant government intervention yet, since the initiative to establish SE constantly grows, and business conditions are satisfactory enough for SE organizations in all their diversity and do not require substantial government support. On the other hand, in countries with a lower level of economic development where looking for resources in order to start a business and administrative obstacles along the way are significant, SE identification with the introduction of strict numerical limits for the relevant criteria is an objective necessity. In this way it will be possible to find the companies important for the public, those that address burning social problems, instead of ensuring the existence of ‘elevators’ driving deceitful or corrupt companies toward different types of government incentives, as those dishonest organisations only use ‘social features’ as a way of achieving their market goals. In this regard, we believe that the most suitable option for the countries in which the activity of SE is still underdeveloped, however where there is public demand for its activation, should be the use of the practice of the states in which criteria for identifying SE has already proven their effectiveness, i.e.: over 30 per cent of their staff comprises vulnerable people, and there is reinvestment of at least 50 per cent of profit into socially beneficial aims.

After analysing the impact of environment factors on the activeness of SE establishment and development, we have confirmed the high importance of social factors verified by reasonable differentiation of income distribution (‘Income Distribution’), as well as overall high level of tolerance and acceptance of social issues in the
society verified by ‘Helping a Stranger’ factor. As for the environment of financial and institutional business support, the impact of the ‘Monetary Freedom’ factor appeared to be the most significant one given the provided data.

It is obvious that our study does not claim to fully and completely satisfy the questions regarding the possibilities of regulation of business activity in establishing SE. We also do understand the uncertainties with reference to the accuracy of the results that may occur because of the existing limitations in the data management on the spread of the SE and existing differences in national approaches to SE identification. Those attributes do create some uncertainty in the formation of the final dataset and there we have described those doubts in this study. However, we suggest a new approach to the analysis of the institutional environment of the interaction in society, which can result in testing all new models that are more relevant to the appropriate hierarchy level or time range, which will take into account other factors affecting SE. The main idea of our study was the creation of methodical bases to assess the impact of the complex of regulatory mechanisms initiated by state and their perception, as well as the standards of conduct determined in the society upon the formation of new and undeniably important element of modern business: the business that exists on traditional commercial basis, that does not depend only on the participation of benefactors, furthermore that is itself the highest expression of new social benefit – the involvement of individuals that used to be vulnerable or even isolated from public life in active social life in terms of employment and income.

References


Grinevica, L.; Rivza, B.; Rivza, P. (2016). Scenarios for reducing youth unemployment and promoting sustainability in the regions of


TOWARDS SUSTAINABLE FOREST MANAGEMENT THROUGH ENHANCING SAFETY OF NATURE

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Abstract. Human-animal conflict is a major issue in human settlements around forests. Only sustainable forest development will help in mitigating this malady. The repercussions of human-animal conflict are far reaching and are mostly irreparable in nature. Depletion of forests and forest resources are a frightening reality. Extinction of many species, especially large carnivores stare on our faces. A positive attitudinal change towards sustainable development of forests will go a long way in its conservation. A few meaningful and whole hearted steps will facilitate harmonious human animal co-existence. The paper presents the unique story of peaceful co-existence of humans and wild animals in the Jawai forest region of Rajasthan, India. It also provides a few suggestions that can secure the peaceful co-existence of humans and wildlife.

Key words: Sustainable forest management, Wildlife security, Conservation, Human-animal conflict, Jawai


JEL codes: Q00; Q01

1. Introduction and review of literature

Sustainability is now a hot issue (Murali, Murthy and Ravindranath, 2006; Tvaronavičienė, 2014; Vaško and Abrhám, 2015; Stjepanović et al., 2017; Dobrovolskienė et al., 2017). It transcends areas and disciplines. Studies about sustainability has been undertaken in broad disciplines like agriculture production (Nagyová, Holienčinová, Rovný, Dobák, and Bilan, 2016) tourism (Vaško and Abrhám, 2015), industry and technology (Tvaronavičienė, 2014; Tvaronavičienė and Černevičiūtė, 2015), food safety (Volchik and Maslyukova 2017), forest management (Murali, Murthy and Ravindranath, 2002; Murali, Rao, Sudha, Sangeetha, Murthy and Ravindranath, 2003; Murali, Murthy and Ravindranath, 2006), social entrepreneurship (Sulphey and Alkahtani, 2017), higher education (Čirjevskis, 2015; Volchik and Maslyukova, 2017), etc. The present study attempts to present the unique case of Jawai region in Rajasthan, India. In this region the dwellers near the forests were able to secure peaceful co-existence with large carnivores due to sustainable forests management. There have been absolutely no known reports of human animal conflicts in the region.

Surging human population and the burgeoning settlements near wildlife territories often lead to human–animal conflict. This conflict is now a serious threat to long-term conservation of wildlife. The most common outcome of human-animal conflict is the lethal removal of the predator, either by the management agencies or the land
owners (Treves, Wallace, Naughton-Treves and Morales, 2006). Around the world, human-animal conflicts often lead to drastic decline in animal population and even extinctions (Fa and Brown, 2009; Loveridge, Sillero-Zubiri, Reynolds and Novaro, 2004; Schipper, et al. 2008; Wang, Frank and Seidensticker, 2010; Woodroffe and Ginsberg, 1998; Woodroffe, Thirgood and Rabinowitz, 2005). However, the decline in population is not limited to human conflicts. There are many instances when wild animals are hunted in large numbers for various reasons. For instance, Teichman, Cristescu and Darimont (2016) based on data of 30 years (from 1979 to 2008) in British Columbia; Canada found that a total of 8788 cougars were hunted/killed (5348 males and the rest females). During this period only 1238 were killed as a direct cause of conflict and a staggering 7550 died due to hunting!

Killing of wild animals take several forms, and often it’s ecological and evolutionary consequences and repercussions could be severe than the actual type and number of predators killed (Krofel, Treves, Ripple, Chapron and López-Bao, 2015). The available accounts about human animal conflicts are staggering. Reports show that over 6,700 cheetahs have been killed by cattle rearers in a single decade (between 1980 and 1991) in Namibia (CITES, 1992). In the Siberian region Far East Russia, retaliatory killing account for near to half the mortality rates of tigers (Miquelle and Smirnov, 1999). In Uganda the chimpanzees are facing heightened threat due to conflicts, and extinction is staring on the species (McLennan, 2008). It is reported that the Falklands Wolf became extinct in 1876 due to conflict with humans (Sillero-Zubiri, et al., 2004). These misfortunes occur due to a variety of reasons. Some of them include severe range fragmentations and contractions.

Human-animal conflicts are also found to create social tensions and law and order issues around the globe. Be it in the Masai region of Africa, Sumatra of Indonesia, Amazon of Brazil, the Terai region of India, the Sunderbans of the India-Bangladesh region; these conflict strikes fear in the minds of humans. This fear is higher when the conflict is with larger animals like tiger, lion, bear, leopard, cheetah, cougar, rhinoceros or elephant.

Antagonism and fear against the conflict causing animals could also lead to certain exaggerated perceptions, and a wide range of negative beliefs. This antagonism is often found to be embedded in the culture through certain constructs and stories, which have mostly noting to do with reality. These stories are often reinforced through computer games and films (Dickman, 2013). There are lot of such stories from across the world. In Africa the local people believe, despite there being no evidence, that cheetahs kill and eat people (Dickman, 2008). In East Africa, particularly Mozambique, people believe in sorcery and have a peculiar belief about ‘spirit lions’. They believe that the lion’s body could be hijacked by evil powers and make them to kill members of the rival community and their cattle. Since it is impossible to distinguish a ‘spirit lion’ from the normal lion, due to fear, people kill any lion that they may encounter (West, 2001). A similar belief is prevalent in Sierra Leone (Richards, 2000). Here certain rural communities strongly believe that powerful enemies are capable of disguising in the form of chimpanzees to murder young members. They also believe that these people steal body parts from the murdered youth to prepare medicines that could help them gain economic and political powers. Another primate, the Daubentonia madagascariensis, popularly known as aye-aye, also evokes strong negative feelings among the rural natives of certain African countries. Since they consider aye-aye as an evil, they kill it on sight. There are also instances where a whole village is abandoned just because an aye-aye is sighted. They believe that if they do not do so, everyone in the village will fall sick and may even die (Simons and Meyers, 2001). These fears are not confined to developing world. Even in the developed world such perceptual errors persist. For instance, in Norway, near to half the population are afraid of wolves, though there is no documentary evidence to prove an attack on humans in the last two centuries (Linnell, Solberg, Brainerd, Liberg, Sand, Wabbaken and Kojola, 2003).

As stated elsewhere, human-animal conflicts also create social tensions. In the USA, the reintroduction of wolves leads to severe conflicts with ranchers and hunters. They bear a grudge against the government that their views were ignored in favour of other stake holders like environment and wildlife agencies, NGOs and urban dwellers (Nie, 2004). These tensions are intense near the borders of protected areas. The dwellers around the protected areas perceive that while they have to suffer the adverse effects from the wildlife, the benefits are reaped by the government and its agencies, tourists and other commercial organizations.
2. Reasons for conflict

There are many reasons for human-animal conflict. This is now a topic of deep research interest (Dickman, 2010; Teichman, et al., 2016; Woodroffe et al., 2005), and considerable literature has been accumulated about various aspects of human-animal conflict (Dickman, 2013; Durant et al., 2010; Hazzah, 2006; Hazzah, Borgerhoff, Mulder and Frank, 2009; Heberlein and Ericsson, 2008; Hockings, Yamakoshi, Kabasawa Matsuzawa, 2010; Inskip and Zimmerman, 2009; Lee and Priston, 2005; Mishra, 1997; Naughton-Treves and Treves, 2005; Packer, Ikanda, Kissui and Kushnir, 2005).

Traditionally, caused due to competition for space and fragmentation of forest areas, these conflicts often result in crop destruction, attack on livestock and other domestic animals, and injury or death of human beings. The attack on human beings is despite the fact that normally humans does not form part of carnivore diet (Balasubramaniam, Chavan, 2014). Raiding on crops has been another major issue since, in most instances; agriculture is done in the fringe areas of the forests thorough resorting to forest clearings. Added to this is the territorial behaviour of certain large mammals, and the fact that they roam across vast territories. They are also biologically programmed to roam large distances. It has been observed in India that elephants move hundreds of miles from West Bengal to Assam, and back regularly despite food being abundant in both areas. This is also the case of Gir Wildlife Sanctuary were Asiatic Lions cover hundreds of kilometres within the territorial limits of the sanctuary and outside.

Human Loss due to conflicts

Human-animal conflict is severe in almost all continents. It is estimated that between 1990 and 2004, over 800 people have been injured or killed due to lion attack in Tanzania. Over 100 people are killed annually in Mozambique and Namibia, due to crocodiles. Evidences in India shows that over 400 people lose their life due to elephant attack. In Bhutan, destruction by the large predators – tigers and leopards result in loss of over two thirds of their total cash income to local villagers (Wang and Macdonald, 2006). It is estimated that villagers who reside around the Kibale National Park of Uganda loose considerable part of their crops, out of which 70% is due to damage caused by primates (Naughton-Treves, 1998). In southern Brazil, large number of sheep and goats are lost as a result of attack by cougar or mountain lions (Mazzolli et al., 2002). It is also a matter of deep concern that people who fall victims to wild life attaché belong to the lower strata of the society and are weak in terms of socio-economic status.

Mitigating human-wildlife conflict

Mitigation of human-wildlife conflict is a matter of great significance. Effective steps towards mitigation depend largely on a deep understanding of the factors that drive towards the conflict (Inskip and Zimmerman, 2009; Sillero-Zubiri and Laurenson, 2001). The notion that wildlife should be confined to the forests, when forest land forms only a miniscule percent of the total land mass is one aspect that leads to conflict. As such attitudinal change among stakeholders, policy makers and media needs to be addressed with top priority. Further, the popular conception that forests are residual land should be changed, and a feeling has to be inculcated that they have their own rights and importance.

The dwellers around the forests, especially those in heavy-risk areas need to be educated about steps on preventing and mitigating human-animal conflicts. Evidences show that a robust monitoring system that records and disperses the required information about conflicts help in building an early warning and monitoring systems. Such warning and monitoring systems have worked wonders in countries like Indonesia, Kenya and Uganda and has helped in reducing animosity against wild animals (Balasubramanian and Chavan, 2014). An apt solution to this malady is the sustainable management of forests and forest resources. Now forest management is now not merely limited to timber oriented activities. Sustainable forest management to be successful in conserving the wildlife should be modelled on a “holistic ecosystem approach”. For this there needs to be an integration of the three aspects of production, protection and conservation. Further, a robust long-term monitoring, engagement and participatory system with the communities dwelling around the forests will help in considerably reducing the animosity against wild animals.
Certain socio-cultural factors also result in either conservation or attack on wild life. For instance, in Nepal there are certain Buddhist societies which believe that the snow leopard is associated with the mountain god. They further believe that any attack by snow leopards is some form of punishment as a result of human transgression. Due to this belief victims seldom resort to retaliation against the acts of such cats (Ale, 1998).

The following section presents a unique case of peaceful co-existence between the villagers in Jawai forest region in India and the wild animals including large carnivores.

3. The unique case of peaceful coexistence of the Jawai region

The Jawai region is a dry deciduous area in the Pali district of Rajasthan in India. It is a rocky village situated in the Aravalli mountain ranges. The villages of Bera, Perwa and Sena are near to Jawai and form the region. The rocky villages are adjacent to a tiger pocket and are sparsely populated. The uniqueness of this region is that leopards wander in the villages without any conflict with the humans. It is estimated that there are around 40 leopards in the region. The area is also inhabited by sloth bears and certain other smaller animals. Though fragmented forests, and loss of habitat and prey has made these animals vulnerable and has compelled them to wander in human settlement areas; they do not face any resistance and have no conflict with the villagers. There has been practically no instance of leopard attack on humans in the area for a long time. The leopards of the region often watch people passing by like a domestic cat, staying at a distance in its comfort zone. The villages also provide the large carnivores their due rights. The presence of leopards is un-obstructive in nature and they are having a perfect coexistence with human beings. The carnivores usually prey on monkeys, nilgais (a type of antelope), peacocks, rabbits, etc. Occasionally they prey on livestock of the village too. However, these attacks are considered by the villagers not as loss, but as their sacrificial offering.

This unique nature of the village has given its economy a boost with leopard safaris and jungle camps that has emerged in the village. Many villagers act as guides to tourists and earn a decent living. The leopards of Jawai have another unique behaviour. Though normally leopards take rest and consider themselves to be safe only when they are arboreal, the Jawai leopards have no issues in taking rest on big rocks, exposing themselves to humans and providing a spectacular visual feast to visitors and tourists.

This queer co-existence has not been achieved overnight. Certain socio-cultural factors and beliefs maintained by the villages has been the reason of this rate fete. The local people attach spiritual significance to the leopard. They believe that leopards are incarnations of the “Goddess of bravery”, and if they are harmed misery will befall them. As such they don’t mind losing a livestock and consider the preying by the leopard to be an offering to God. The safety and security enjoyed by the carnivores over the past many decades has made them to change their innate behaviours.

4. Can the unique nature of Jawai be replicated?

Is is possible to replicate the unique nature of Jawai region to other areas to reduce human animal conflict? This is an aspect worth considering. Though it may not be possible to copy the Jawai system, definitely the “ingredients” and the spirit imbibed in their culture is a perfect mix that can bring in sustainable forest management. Not all dwellers will have the mind to consider carnivores as incarnations of God. However, the spirit of the Jawai region can be used by forest administrators in other areas to facilitate the conservation of forests and the wildlife. For instance if the local villagers in the vicinity of the forests are fairly and timely compensated for the loss of livestock, they may not consider a stray attack to be of any problem. Further, when there is no retaliation against the carnivores for their preying and with the abundance of food, they may not attempt to attack humans. This was successfully tried with respect to the ranchers of USA. Any loss of their cattle due to preying by carnivores was timely and fairly compensated by the local government and the stakeholders. Due to this they desisted from poaching on the carnivores, and there was a considerable reduction in the number of human-animal conflicts. They also accrued considerable indirect gains due to a host of ecosystem services obtained as a result of wildlife. Based on the learning from the peaceful co-existence of humans and carnivores,
and the sustainable management of the forests in Jawai, a few suggestions that can be implemented in other regions where conflicts exist are made.

Suggestions and conclusion

Sustainably managed forests provide a lot of ecosystem services like water, food, wildlife, recreation facilities and scenic beauty. Forests are considered as the lungs of earth. The wildlife is the custodians of the forests. They help in maintaining the healthy balance of the forests. Forests and wildlife is mutually dependant for existence and healthy growth. As such there is a definite need for sustainable management of forests.

The case of Jawai region is unique in nature. The peaceful co-existence enjoyed by the humans and wildlife in this region is unparalleled. This co-existence has been developed over a period of time and not overnight. The villagers never attempted to offset the delicate equilibrium set by their ancestors. They never tampered with the fine balance with the forest land. Though this may not be replicable in other regions in toto, elements of the example set by the dwellers of Jawai can be implemented in other forest regions too. A few suggestions are presented below:

1. **Sustainable development of forest areas**: Forest areas should not be considered as wastelands. Forests should be accorded their due importance, and be considered as an area that has its own rights. The World Commission on Forest and Sustainable Development (WCFSD) initiated by the United Nations Conference for Environment and Development (UNCED) has developed a set of criteria and indicators for sustainable forest management. Meticulously following the criteria will help in maintaining the self regeneration capacity of the forests, which will in turn help in mitigating human-animal conflict. Though not as per any criteria, the villagers of Jawai have traditionally adapted measures that helped them to be in harmony with the environment and forest. This helped them in having a peaceful co-existence with the wild animals, and the consequent booming economy.

2. **Joint Forest Management (JFM)**: JFM is the sustainable management of forests by the Government, the community and other stakeholders. Initiated voluntarily in many parts of the world, it is now doing wonders. This program if implanted wholeheartedly will help in utilizing the services of the local community in the management, restoration, regeneration and protection of the forests. This will have far reaching ecological impacts (Murali, et al. 2002, 2006). While implementing JFM, the unique socioeconomic and cultural realities should also be considered. JFM has been implemented with great success in many parts of the globe including India. It is estimated that JFM Committees in India are managing over 15 million hectares of forest across the country.

3. **Securing timely compensation for any loss**: Creation of an effective mechanism whereby any loss due to preying by carnivores is fairly and timely compensation is an effective way of reducing the intensity of human-animal conflict. There are considerable evidences to this effect from various parts of the world. In the case of Jawai villagers the villagers attached spiritual significance to loss due to preying by leopards like the snow leopards of Nepal. They considered this spiritual importance as a fair compensation for loss of livestock, due to which no conflict arose between them and the carnivores.

4. **Early warning and monitoring system**: Considerable evidences exist about the utility of a robust monitoring system that is capable of recording and dispersing information about conflicts (Balasubramanian and Chavan, 2014). Such a monitoring will help in building a sound early warning and monitoring systems to the dwellers in the vicinity of forests. Experiences from across the globe show that such an early warning and monitoring system is capable of reducing the animosity of humans against wild animals.

5. **Reduction of demand on forests**: The dwellers in the vicinity of forests are to be enlightened about the need for efficient use of forests and forest resources. The villagers of Jawai region attached spiritual significance to the forest land and have a temple in the forest. Though they relied on the forests for grazing cattle and for fodder, all these activities were carried on in a sustainable manner, which was developed traditionally over the past many decades. They never attempted to exploit or offset the delicate equilibrium set over the past many years.

6. **Payment for ecosystem services**: Payment for ecosystem services (PES) is an approach wherein the ecosystem service providers are paid or derive benefits from the consumers from the services provided. Nor-
nally five ecosystem services have been indentified – provisioning, supporting, cultural, regulating and bundled services (Sulphey and Safeer, 2015). In the case of Jawai, the villagers are providing cultural and bundled services by being custodians of the forest land and the prized wild life. Normally PES is made by Mitigation markets (like Clean Development Mechanism of Kyoto Protocol), Business-to-business markets, and Government payment markets (Salzman, 2005). The PES for the Jawai region is made by the tourists who flock to the village to see the carnivores, the spectacle of which is not available in any other place. Many villages, by acting as guides and operating camps are able to make out a living due to the unique culture of maintaining a harmonious co-existence with the carnivores.

Forests and wildlife are unique possession and assets of humanity. Its regeneration to its original position is in no way possible. The only alternative is to maintain whatever is presently available. An appropriate change in attitude and few wholehearted interventions will help in maintaining the fast depleting forests, which are considered as lungs of earth; as well as the wildlife that reside in them. Modern man is witnesses to innumerable extinctions, and if the trend in this direction is to be arrested, there is an urgent and definite need for a positive attitudinal change. Let us earnestly and honestly hope that the spirit of the settlers of Jawai region is transmitted to other areas, and there is a peaceful co-existence of all the creations on earth.

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ECONOMIC SECURITY AND INTERNATIONAL RELATIONS IN THE EUROPEAN UNION

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Abstract: Our paper is dealing with the issues of economic security and international relations in the European Union (EU) at the uncertain times of rethinking European security and sustainability in the face of Brexit and other challenges facing Europe.

The paper focuses on the EU issues from the point of view of the outside observer. It also discusses the EU neighborhood policies, EU energy balance and power nexus, as well as other economic and political challenges that might undermine the position of the EU in the rapidly changing world.

We analyze the EU economic and energy strategy and discuss the implications of Brexit on the EU economy and security in the world affairs. The paper tackles such important issues as energy security, economic security, international trade in the EU and the future of the Eurozone. Our results and implications might be useful for relevant policy-makers, EU decision-makers, relevant stakeholders as well as for the citizens of the EU residing both in the “new” and the “old” Member States who might want to get a non-involved expert insight into the European affairs and that possible pathways of its future development.

Keywords: economic security, national security, international trade, energy, international relations


JEL classifications: F01, F52, P45

1. Introduction

Nowadays, the EU stands at the crossroads of international politics and economic development searching for the new pathways to follow and the new wind to be found for its sails. Many recent events shattered its position and its perspectives for further deepening and enlargement. National security issues are becoming a number one priority in the EU. Wide array of national security facets is being discussed, but energy security issues remain among the most urgent ones (Baublys et al., 2015; Jefremov, Rubanovskis, 2015; Tvaronavičienė et al., 2015; Navickas et al., 2017; Genys, 2016; Tvaronavičienė, 2016; Schröder, Prause, 2015; Strielkowski et al., 2016a; de Espona , 2016; Oates et al., 2017).

Generally, in European Union, the discussion of national security has mainly been shaped by the gas crises of 2006 and 2009, the time when Russian gases stopped to flow via Ukrainian pipelines caused by disputes between the two nations over the prices of gas as well as debts. The crises took place amidst mounting fears of resource nationalism in exporters of energy, and in the context of high prices of oil. The main concern was
the economies of Europe were susceptible to political pressure from the exporters of energy and to strategic rivalry with resource-hungry China. However, today, fears of supply seem less salient. Energy security has been defined in various ways and such definitions range from narrow issues of disruption of physical supply to wider ones which involve the political, environmental and economic consequences of shifts in energy markets (Dreyer and Stang, 2013; Balitskiy et al., 2014).

Nevertheless, the simplest definition which the International Energy Agency uses to refer to energy security is “the uninterrupted availability of energy sources at an affordable price.” Attainment of this security needs efforts for reducing risks to the systems of energy, both external and internal, and to create resilience so as to manage the remaining risks. Tools for achieving this include making sure that markets operate so that demand forces and supply match, development of enough production as well as transport infrastructure, expansion systems of risk management (alternative supply routes, emergency planning and reserves), maintenance of a diversified energy suppliers’ portfolio, and controlling demand (energy efficiency) (Comolli, 2010). However, considerations of energy security ought to be balanced against environmental and competitiveness forces; particularly those which relate to climate change.

The economic crisis in Europe, its economy’s maturity, its stagnant demographics and its attempts to decrease fossil fuel use are reducing expectations of future demand of energy. Perhaps, imported gas is possible to comprise 80 percent of consumption by the year 2030 as a result of falling domestic production in the Netherlands and the United Kingdom. Even though the European Union is thought to have a substantial quantity of shale gas which might contribute to its security of supply, forecasts for development seem bleak in most member states because of strong environmental hostility and uncertainty concerning the real extent of deposits. In spite of ambitious targets, the European Union energy mix shifted somehow between 1995 and 2011. The nuclear energy’s contribution remained constant at 14 percent of gross inland consumption, whereas the usage of renewables (from 5 to 10 percent) and gas (from 20 to 24 percent) came at the expense of petroleum products (from 39 to 35 percent) to coal (from 22 to 17 percent) (Bilan et al., 2017; Dreyer and Stang, 2013).

All energy sources have their own risk profiles, with some more vulnerable to interruptions of external supply. Generally, nuclear plants keep adequate fuel on site to run for over two years. There is plenty of coal, and it is fungible and cheap. Development of renewable energy has been a widely domestic process up to the present date. Consequently, for these fuels at least, disruptions of external supply are not viewed to pose a significant risk. Ever since the 1970s first oil shocks, European nations have taken steps including diversification of suppliers, the creation of substantial facilities for storage of oil, and reduction of the significance of oil in their economies, as a way of ensuring that considerable shortages of does not pose a threat like before. But, it is the interruptions of supply of natural gas that has have resulted in the most worries because of the transport mechanisms involved (long pipelines from Algeria, Norway or Russia) and detrimental contractual measures.

The European Union has sought after enhancing energy security through the construction of a resilient, open and interconnected internal market, while it pursues a rules-based, multifaceted approach globally. The Energy Charter Treaty (ECT) of 1994 gave an outline of rules for transporting energy, investment protection, settlement of disputes and cooperation on environmental problems. Though high hopes were bestowed on the ECT, despite signing, Russia never approved it. On the other hand, Moscow withdrew from it in 2009 and in the same year cut off gas to Europe in the course of its conflict with Ukraine (Comolli, 2010). The European Union policy response to the crises of gas of the past decade has been a reinforced determination to make markets of gases more open through questioning monopolistic clauses in long-term contracts of supply signed with outside suppliers of energy, establishing antitrust cases against energy utilities (which comprise many EU firms and a ground-breaking case against Gazprom), formulating standards and responsibilities for supply security and promotion of better interconnectivity amongst isolated domestic markets in the new Eastern and Central European member countries through pipeline reserve flows and interconnector pipelines.
2. Energy security and environmental sustainability in the EU

Currently, the issue if gas and oil security are no more a major concern. Rather, it is the continued plenty of fossil fuels, particularly coal, which is the primary worry. The ready availability of coal makes it hard to reduce the consumption of fossil fuels and carbon dioxide emissions. The Climate policy of the Union is very ambitious; though it encounters some challenges. Main measures have been the launching of an ETS (carbon emission scheme) and obligatory targets for renewable energy (a decrease of 20 percent compared to 1990) as of 2020). Nevertheless, low prices of carbon, as well as the rejection of nuclear power in Germany, have resulted in new dependence on coal. Thus, even with lower energy consumption throughout the economic crisis, the European Union is not able to meet its own carbon dioxide emission goals. Given that the EU’s own domestic strategy of climate is revealing its constraints could as well reduce the influence of EU in the international climate policy platform, remarkably for talks on a successor to the Kyoto Protocol of 1997(Dreyer and Stang, 2013; Strielkowski and Lisin, 2013).

With regard to the above, the raising importance of renewable energy sources in the EU becomes apparent. Figure 1 that follows shows the EU energy balance in 1990-2015.

![Fig. 1. EU energy balance (1990-2015)](image)

The implementation of the existing climate policies leads to the emergence of fresh energy security concerns. The greatest security challenge in the present day is how to control the essential economy decarbonization while preventing the interruption of electricity markets. Intermittent renewable energy sources; solar and wind power have been expanding fast, for instance, and transmission grids have undergone through difficulties adapting to the resultant irregular power influxes (see Figure 1). Conventional plants of generation; nuclear, coal and gas are being forced into backup functions with plants being left idle new investments postponed, and utility companies placed under pressure by rambling indicators of pricing. Under such circumstances, it is impossible to rule out main electricity blackouts.

Source: Eurostat (2016)
3. Difference between the old EU and new EU Member States

Apart from employment protection laws that have been converging, various institutions of the labor market in old and new EU Member States like labor union destiny and wage bargaining coordination still vary considerably. Such institutions of the labor market as well differ amongst the new EU members, with the Baltic nations being much more liberal compared to the others. Overall, there are various differences between the old and new EU member states. Fundamentally, labor markets are in general viewed as being more flexible in the new EU members than the old ones. Labor market institutions in the new EU members are different from the older members for two key reasons (Rovelli, 2016).

To begin with, the institutional mechanisms established in the socialist period for the protection of labor did not endure the transitioning to capitalism many transition economies, therefore, entered the 1990s with less labor protection vestiges. Also, since the economic systems of the new EU members were quite under-developed, these states would not afford to establish costly institutions of labor market like unemployment benefits as well as active labor policies of the market. Thus, these institutions are frequently undersized in the new EU members. Similar conditions did not have an impact on certain other labor market institutions like employing and firing limitations and other protection regulatory instruments of employment which affect labor unions and wage bargaining (Rovelli, 2016).

Moreover, the distinction between the “old” and the “new” EU Member States might be searched in the approach to economic realm and the rule of law that were shaped by the economic transformation of the 1990s that went hand in hand with such unpleasant by-products as for example corruption and tax evasion (see e.g. Koudelková et al., 2015; Čábelková and Strielkowski, 2013; or Strielkowski and Čábelková, 2015).

4. Impacts of Brexit on the EU security and disintegration of the EU in the future

Some scholars have attempted to analyze the effect of Brexit on the future of EU. The negative economic impacts of greater trade barriers are among the reasons to be worried about Brexit. However, not everybody is concerned about the impact Brexit has on the EU’s future. Definitely, there is the argument that the United Kingdom was an enemy of higher European integration and that the European Union without the obstructions of the UK might pursue more cohesive policies which focus on greater integration. Particularly, the assertion is that the absence of the United Kingdom could make it easier to focus on policies which will assist in making a success of the euro as a shared currency, for example, a shared deposit insurance scheme or a common insurance program of unemployment. Conversely, there is another view which suggests that the United Kingdom has traditionally been a strong supporter of economic reforms which enhance growth like the completion of the single market as the maintenance of free trade across the globe. Therefore, without the voice of UK at the EU’s debating table, the possibility of reforms which enhance growth in future years is reduced (Karl, 2016; Oliver and Williams, 2016).

The day of the 29th of March 2017 marked yet another historic moment; one that had a significant effect not only on the European economy but also on the entire world’s economy. This is the day that Britain submitted its notice of quitting the European Union. This move is likely to have a major effect on business across Europe, owing to the fact that a member who chooses to leave is stripped off the benefits they were initially accustomed to. In order to further elucidate on the subject matter at hand, this analysis will look at the economic implications of Brexit on the European Union, Euro currency, and the EU Single Market.

5. Implications for the security and international relations in the European Union

Britain’s exit from the European Union will definitely create a big challenge for other member states. One of the greatest challenges that they will have to face now that the second largest EU contributor is no longer part of the team is, filling in the shortfall out of their contributions. Britain was one of the top contributors of the European Union. In 2016, for instance, its annual budget was agreed at £16 billion (Kauders, 2016). This was inclusive of custom duties it had to pay for being part of the EU. In return, it used to receive up to 7 billion euros worth of sub-
sidy. With its premature exit, Britain now leaves a loophole of 5 percent which other members are obliged to fulfill. According to IFO situated in Germany, their country which is arguably the chief contributor has no option but to offer an additional 2.5 billion euros in order to fill in the void left behind by Britain (Burrage, 2016). This will actually be a major challenge owing to the fact that the country is already offering a lot to the Union. According to UniCredit, a possible eventuality would be the consistent management of more negatives within the euro confines. It is, however, anticipated that the Union will seek to take a financial flight to secure itself while uncertainty looms leading to the culmination of an even tighter budget for them. The current Gross Domestic Product would definitely have to be revised.

It is estimated that the current trade surplus of the European community stands at 100 billion euro (Shipman, 2017). Britain alone is known to seek external goods and services amounting to 20 billion(Shipman 2017). It is therefore apparent that the Brexit will result to the weakening of the EU since a lot of resources formerly exported to Britain will have to be rescinded. This would be disadvantageous owing to the fact that they contribute 2.6 of the total GDP of the Union.

The reintroduction of the tariffs to be imposed on the deserter will end up leading to a “demand shock” (Oliver, 2016). In turn, this would result in a significant drop of the GDP by up to 0.26%(Oliver, 2016). Britain’s exit is therefore very critical to the European Union to an extent that they may have to comply to the terms and conditions of the superpower. This means submitting to their requirements for continued freedom in terms of all provisions except having to accept outsiders into their countries to enjoy significant benefits being enjoyed by the rest of the nationals.

It was implied that the momentous exist resulted from Britain’s dissatisfaction with immigrants moving into their country and enjoying privileges that most of them end up not earning. This would greatly affect the European market owing to the fact that more than 1.2 million workers were reported to be in Britain in 2015 (Cini andPérez-Solórzano, 2015). The effect would mostly affect countries with large numbers of immigrants in Britain such as Poland. Nations with significant affluence equal to that of Britain would, nonetheless, be forced to accept more immigrants. This would greatly impact on their economic viability.

Bertelsmann, a research foundation based in Europe intimates that Britain’s exit is bound to affect other countries such as Ireland more than it would affect the former. This is due to their great dependence on the nation. The impact that this withdrawal would have on Britain is termed as a “soft exit” (Macshane, 2015).

Other countries that are likely to be devastated by the sudden change of events are Benelux counties. The impact would, however, be minimal on Germany since the country has other external markets for their manufactured commodities. Belgian Region of Flanders is also anticipated to experience a significant drop on its GDP pending the exit. Other dynamic effects likely to be experienced involve reduction in the general productivity of the European Union due to reduced internal competition.

Brexit also has the potential to reduce the integration between Britain and the EU. In addition to this, heightened uncertainty is bound to arise following the introduction of negotiations meant to institutionalize the trading domain. Some of the great leaders in the EU appear to be opposed to the negotiations that Britain seeks to bring to the table. The German chancellor Angela Merkel, for instance, intimated that it is impossible for a nation to avoid the challenges while only gaining consistent benefits.

This implied that she was unhappy with the fact that Britain wanted to continue enjoying all of the freedoms of the Single Market being entitled to the rest of the European Union nations, expect the freedom of free movement. According to her the suggestion is preposterous and the debates of how to “punish” Britain for exiting the EU are on-going. While in the first stage of these debates the EU established itself into the position of a mentor threatening to charge Britain “billions of Euros” for leaving the EU, the balance is slowly shifting towards Britain which is now claiming it will be the EU who would have to compensate their country for leaving.
6. Security implications for the Eurozone

Brexit is bound to result to some detrimental consequences regarding Europe’s most used currency. It is highly anticipated that following the exit, the currency is bound to lose value. This is likely to favor Britain traders since a loss of value in the currency is likely to result in cheaper exports (Macshane, 2015). This would in turn increase their overall productivity, thus implying that the Brexit is going to favor traders. The European Union block is likely to be affected by this change owing to the fact that their resources will lose their value with time making it difficult for them to recover the amount they are seeking to fill in the void left behind by Britain.

A decline in the value of the Euro will adversely affect many sectors of the economy. There is bound to be an influx in commodities, leading to a reduction in demand and hence a lot of resources may end up going to waste. A key thing to note is that only those British companies that are well connected to the other markets despite the European Union will stand to benefit. Others may end up collapsing following closed ties between British and the EU since they will no longer have a market for their produce. Those who had anticipated the Brexit may be at a vantage point compared to those who chose to ignore earlier signs.

Investors on the other hand, are also likely to transfer their resources to other markets such as the dollars which they presume are safe havens owing to the recent change of the events. This is likely to result in a reduction in overall investment within Europe and in the end it may have detrimental consequences on the banking sector which highly relies on these investors. As such, the financiers will now be more risk averse than ever before (Oliver, 2016). The Brexit is, therefore, not only anticipated to affect one currency, instead it may end up leading to negative repercussions on others as well owing to the great insignificance and inconsistency of trade being experienced.

7. Security implications for the EU Single Market

European Union is considered to be one of the largest markets in the world. This means that the exit of one of the most strategic partners is undoubtedly going to affect the entire market. Countries that formerly exported commodities into Britain may have to opt for other markets for their goods. In turn, Britain is bound to lose since their exit will reintroduce tariffs that will end up increasing the cost of commodities moving from Britain to other European countries. The commercial viability of labor is bound to be a thing of the past since Britain has opted not to accept external immigrants. A matter that is bound to affect some of their sectors requiring manual laborers (Strielkowski et al., 2016b). It is anticipated that in the near future, Britain will be clamoring for external labor owing to the impending demand for labor.

Brexit is also anticipated to negatively affect the global role of the European Union. Some tend to think that this may be the beginning of other countries` eventual exit, since they may end up not gaining substantial benefit as before, and hence these exits may result in the collapse of the EU (Shipman, 2017). Further still, the Brexit is likely to result in the breakdown of freedoms that the United Kingdom was initially accustomed to. This may end up demolishing the free trading block owing to the fact that restrictions will have to be imposed on goods moving in and out of the Britain. Approximately 44% of Britain’s exports go to the European Union, therefore, unless negotiations bear fruits the country may have to seek other eternal markets and that is no small task at all (Shipman, 2017).

It is possible for Britain to gain access to the EU Single Market despite its exit. The nation could come to terms with the European Union to in order for them to continually undertake free trading activities despite being a non-member. This would avoid any unnecessary strains that may come about due to reintroduction of strict levies imposed on other non-members. Scarpering a trade pact that would involve an amicable solution as the one formerly proposed would have a major impact on the EU. There is thus no other option left for the Union other than to comply with the proposal.

It is evident from the above illustrations that the Brexit is one of the greatest shocks in recent times. This even
has led to a lot of uncertainty regarding what the future holds for the European Union. It resulted from the idea that the Great Britain was finally weary of the large influx of immigrants who move into the country and enjoy benefits equal to those of other nationals without earning such privileges. It is thus saddening that Britain had to leave uneventfully, however, some negotiations have to be made in order to ensure that that neither the European Union nor Britain gets to suffer due to the changes made. All that is left now is for us to wait and see what happens in the near future before one can decide whether this decision was wise or imprudent.

8. Conclusions and discussions

Overall, it seems that the economic security and international relations in the European Union have been influenced by a plethora of important changes. Brexit, energy issues and the role of the EU in the international relations as a major global player threaten to undermine its otherwise strong and solid position as one of the world’s leading economies.

The EU is now facing harsh times with threats not only to its economic and political security but to its sheer existence coming from all sides. With regard to the competition from other leading economies, such as China, India, Brazil or the United States, the EU needs to collect itself and to find new ways for consolidating its economic and international position as well as how to solidify its internal affairs.

Energy security might be one important thing to follow. With the dependence on Russian gas and oil, the EU has to reinvent its climate and energy policy and to invest more into the renewable energy sources. Moreover, it needs to introduce comprehensive policies in order to enable all of the above.

When it comes to Brexit, this might not be the last initiative of the EU country to leave the union – there might be more countries willing to follow. What needs to be done is to find the new unifying idea to bind all Member States for one common goal that might either be the creation of a federation or confederation. All in all, the EU needs to find a new place in the troubled world of tomorrow that would be full of threats ranging from economic instability to terrorism. One can only reckon that the European Union has very decent chances to survive in this new world.

Acknowledgements

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Towards food security through application of novel scientific findings

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Abstract. This paper is devoted to novel scientific findings, which, is properly exploited, can contribute to food security both, locally and globally. Specifically, the presented paper reports on the analytical characteristics of pectic substances derived from Cucurbita cultivated in the Republic of Kazakhstan. The fractional composition of pectic substances, their analytical characteristics and degree of etherification, content of organic acids, sugars, vitamins and mineral substances are studied. The results demonstrated that these raw materials can be considered a source of pectic substances, carbohydrates, vitamin C, a niacin and carotene. Moreover, pectic substances of Cucurbita are low-etherified, a characteristic implicated in expediency of their use as detoxicator.

Keywords: food security, novel scientific findings, pectin substances, fruits of pumpkin, analytical characteristics, etherification degree, gelling and complexing ability


1. Introduction

Application of innovations and novel scientific findings is one of the most important paths towards high value added economy, and therefore towards increase of competitiveness of novel food products, industries, and, ultimately, through food security towards economic security of the whole country (Travkina, 2015; Pauceanu, Sahli, 2016; Aleksejeva, 2016; Ciemleja, Lace, 2016).

Creation of innovations and coming to novel scientific findings is crucial constituent of and precondition of competitive outcome materialized in service or product. Recently this strand of scientific literature has been actively expanding (e.g. Ahmed et al., 2017; Kiškis et al., 2016; Rezk et al., 2016; Branten, Purju, 2015; Shatrevich, Strautmane, 2015; Oganisjana et al., 2015; Rezk et al., 2015; Petrenko et al., 2016). Commercialization of novel findings remains another important constituent in high value creation process (Laužikas et al., 2016; Tvaronavičienė, 2016; Lace et al., 2015; Njaramba et al., 2015; Laužikas et al., 2015; Długoborskýtė et al., 2015; Prause, 2015).

Application of novel scientific findings in such specific area as food industry directly contributes to enhanced food security (Nagyová at al. 2016; Shevchuk et al. 2016). In this paper food security as an ultimate outcome
Pectin, a natural detoxicator and radioprotector, is an important and multifunctional substance globally (Donchenko and Firsov 2006; Il’ina, Donchenko and Zemskova 2003). Development of production technologies for different types of pectin can ensure ecological purity and safety of processes while maintaining high quality of the target product, which has attracted much attention from scientists and experts from leading companies in the industry. (Sokol, Donchenko, Hatko. 2008). Moreover, companies such as Herbstreith und Foks (Germany) and CP Kelco (USA) have pioneered expansion of pectin usage in various industries. Despite its utility and the abundance of raw material resources, pectin production and modifications remains largely impractical. Companies face difficulty in producing pectin with predictable structure, chemical composition, and properties. This difficulty can be explained by the diversity of pectin-containing raw materials which demand unique processing approaches. (Donchenko L.V., Sokol N.V., Krasnoselova E.A., 2012).

In order to develop sophisticated technologies for pectin production, it is necessary to study the analytical characteristics of the pectic substances these raw materials contain. In this regard, researches directed toward the development of an analytical basis for classification of pectin-containing raw materials and the quality and nutritional value of the product are topical and necessary. In the Republic of Kazakhstan, a Eurasian state with the world’s 9th largest land area and a population of more than 17.5 million, there is an especial scientific interest in the investigation of pectin-producing raw materials and advancement of pectin production processes. To our knowledge, this study is the first to report on the analysis of pectin-producing raw materials in the context of Kazakh industry.

In addition to food safety, there is a need to investigate the efficacy of complex pectin biological products as natural detoxicators. In Kazakhstan, the Aral Sea and Semipalatinsk regions are ecological disaster zones in which destruction of natural ecological systems and degradation of flora and fauna took place. (Ecologia, 2011) As a result of this ecological situation, the health of local populations was jeopardized (Nazarbayev 2011). In the regions adjacent to the former Semipalatinsk Test Site (85 settlements with population of nearly 72 thousand of people) there is a high level of cancer diseases and mortality of the population, blood circulatory system diseases, malformations among newborns and premature aging. (Ecologia, 2011). In ecological disaster zones of the Aral Sea region (178 settlements with a total population of 186,000 people), there is a high level of gastrointestinal diseases and anemia, especially among women and children, child mortality and congenital pathology. (Ecologia, 2011). For decrease in such a negative impact of the environment on a human body use of pectic substances is expedient. (Romanenko, Derevyago, 1991; Xotimchenko, Kovalev, 2000).

Furthermore, it is known that Kazakhstan has 1.6 million tons of explored reserves of uranium that brings the Republic to the second place in the world according to its volumes of explored reserves of uranium. In spite of the fact that uranium by nature is not radioactive, danger is constituted by products of uranium disintegration which are radium and radon. During uranium extraction the main radioactivity remains on the places of ore run. At the same time, during production and processing mullocks and mine refuses are formed which demand a special attention. This circumstance defines a necessity to increase the range and production of functional nutrition products with antiradiation and detoxification properties for decrease of a negative impact of ecological factors on a human body.

Functional nutrition describes integration of enriched foods that can improve and support health and also reduce the risk of disease. Enrichment by functional ingredients of food is one of the most topical directions in science of human nutrition and foodstuff in the third millennium. (Tutelyan, Spirichev et al., 2002). The most widespread diseases in Kazakhstan as well as around the world are diseases of cardiovascular system, obesity and diabetes. In this regard, development of technologies on enrichment by functional ingredients of food the population already accustomed to and with the purpose of prevention of many diseases is becoming topical and expedient. In this regard, such important properties of pectin such as complexing ability and solubility determined by such analytical characteristics as the maintenance of free carboxyl groups, level of etherification, a polyuronide component are important.
The World Health Organization (WHO) recommends pectin substances as effective functional additives, and the European Union recommends these substances for the decrease of cholesterol and glucose in blood, with recommended consumption values of 4 and 10 grams per day, respectively (Official Journal of European Union (2012). Therefore, elaboration on the functional uses of pectin (as a detoxicator or radioprotector, a structure former or gelling agent, et cetera) and the raw materials utilized in pectin production has not only theoretical but also important practical value. Pumpkin (*Cucurbita spp*.), a putative organism for pectin manufacture, accounts for 3,000 ha of cultivated land area across the Republic of Kazakhstan (Shepetkov, 2007). It is known that fruits of Cucurbita are rich in carotene, niacin, and vitamins C and B6. Therefore, we carried out an assessment of these nutrients in selected Cucurbita varieties. The natural tartaric acid has antioxidant properties and influences exchange and digestive processes in an organism. It is known that malic acid plays an important role in exchange processes of a human body. It promotes full digestion of iron, interacts with vitamins and decomposes in water. Previous researches showed that amber acid is an adaptogen (increases organism resilience to adverse factors of environment) that is a positive factor when developing products of a functional purpose.

The nutritional value of food is determined in part by mineral composition. Mineral substances, categorized as either micro- or macro-elements, are irreplaceable components of food. Prominent macroelements include alkaline potassium, sodium, calcium and magnesium, and acidic phosphorus, sulphur, and chlorine. Prominent microelements include iron, copper, zinc, iodine, selenium, manganese, and others. Microelements are biologically-active substances that are necessary for the human body in small amounts. In this regard, we carried out the analysis of Cucurbita fruits on the composition of such main macro elements as potassium, calcium, magnesium, phosphorus and microelements – as iron, zinc, copper.

The objective of the present study is to define the fractional structure of pectin substances derived from two major varieties of *Cucurbita spp*. and to report on their analytical characteristics, including content of polygalacturonic acid, methoxyl and acetyl components, level of etherification, gelling and complexing ability, sugar and acid composition, and nutritional value. Knowledge of analytical characteristics of pectic substances will allow to define the scopes of fruits of pumpkin in production of functional food. So the high content of a methoxy component will cause their application as the structure- and jelling agents, the high content of free carboxyl groups – as a complex agent.

2. Research Methods

Important pumpkin (Cucurbita) varieties *Karina* and *Aphrodite* from the Republic of Kazakhstan were chosen as the subjects of the present research. The varieties of table Cucurbita chosen for this study were recommended by special government bodies on a grade testing of crops in the Republic of Kazakhstan, confirming the stability of pumpkin as a source of raw material for pectin manufacture.

**Description of Varieties:** *Karina* is a *Cucurbita maxima*, and a selection of the Kazakh Research Institute of potato and vegetable economy. The fruits are rounded-flattened, of average size, gray and green, rarely variegated, during its storage turn pink. Pulp of a fruit is bright orange, dense, of average thickness, very sweet. The average mass of a fruit is from 2 to 6 kg. A seed cavity is average. Seeds are of cream colour, coriaceous with a solid peel. A type is mid-season productive. Lightness and transportability are high. *Aphrodite* is a *Cucurbita moschata*, and a selection of the Kazakh Research Institute of potato and vegetable economy. The type is oblong, fruits are lengthened with the utricular end. The tail part of a fruit is 2/3 of the total lengths and has no emptiness. The colour of a fruit is orange with drawing in the form of brown not clear disrupted strips. At its full maturing drawing disappears. Pulp is orange, sweet, and dense. A fruit surface is smooth with a mealy and gray wax cover, and at a fruit stem is ribbed. The average mass of a fruit is 5-8 kg. A seed cavity is small. A type is mid-season of table consumption. Fruits are transportable and are well stored. Marketability of fruits is to 90%.

**Analysis:** During the experiments, standard and modern methods of physical and chemical analysis were applied. Mass fraction of moisture (refractometric), mass fraction of protein (Kjeldahl method), fractional composition of pectic substances (protopectin and *hydratopectin*) – calcium-pectic method; fractional composi-
tion of sugar (glucose, fructose, sucrose), content of vitamin C, fractional composition of organic acids, mass fraction of macroelements (capillary electrophoresis), mass fraction of water-soluble and fat-soluble vitamins (capillary electrophoresis, fluorometric, thin layer chromatography, spectrophotometric, photocolorimetry methods), mass fraction of microelements (nuclear and adsorptive). The research was conducted on 120 crop samples of 2012, 2013, 2014 with no less than 6 replicates. Samples of fruits of pumpkin were selected in a technical maturity in the industrial regions of their cultivation. For study cut out the segments consisting of bark and bark pulp without placenta and seeds from no less than 10 fruits of pumpkin. Segments crushed and selected average test weighing 100 g. Hydrolytic extraction of pectic substances from the studied objects of research was conducted with sulfuric acid at 65°C for 1 hour. The emitted pectin was besieged by technical ethanol with 96% strength. The received coagulate of pectin was dried at the temperature of 40-45°C within 2 hours to humidity of 10 – 12%.

3. Results and Discussions

The results of the general content and fractional structure analysis of pectic substances of the chosen varieties are shown in Figure 1. Researches of the general contents and fractional composition of pectic substances in the chosen objects were conducted in six replications. In the Figure 1 data of average value on indicators for each grade are presented. At an assessment of reliability of distinctions between options of experiments is used Styyudent’s criterion on a significance value P = 0.05. Statistical characteristics, standard deviations, square deviations and settlement Styyudent’s criterion have been for this purpose calculated. The settlement Styyudent’s criterion was compared to tabular. In our experiments $T_{calc} > T_{tabl}$, i.e. $T_{calc} = 4.3637; T_{tabl} = 2.2281$ at significance value $P = 0.05$. Therefore, Aphrodite (21.8%) of muscat type has higher overall pectic content (21.8%) than Karina (15.8%).

In all studied samples, the fractional composition of pectic substances is presented by protopectin and soluble pectin (hydropectin). Thus the content of protopectin prevails over soluble fraction that is natural for vegetable raw materials. The ratio of protopectinto hydropectin is larger in Karina type (3.0), causing a difference in the parameters for extraction of pectic substances. In particular, temperature and duration of the process of hydrolysis extraction of this type have to be slightly more than from Aphrodite type, in which the ratio of protopectinto hydropectin is 2.46.

![Figure 1. Fractional composition and total content of pectic substances in the chosen objects of research, % to dry matter](image)

It is known that in the presence of strong mineral acid, pectic high etherification acid is hydrolysed at room temperature. This process is accelerated upon temperature increase, favouring pectin degradation.
Investigation of analytical characteristics of the emitted pectin indicate that the maintenance of free carboxyl groups the pectin samples allocated from fruit pulp of Cucurbita of Aphrodite and Karina types are not significantly different. At the same time, the etherification degree of Karina type is slightly less (37.94%) in comparison with Aphrodite type (43.27%). At the assessment of reliability of the values of etherification degree of the emitted pectic substances it is established that $T_{\text{calc}} > T_{\text{tabl}}$. At the same time $T_{\text{calc}} = 3.1396$; $T_{\text{tabl}} = 2.2281$ at significance value $P = 0.05$. Thus, the emitted pectin should be classified as low-etherified. Complexing properties of pectic substances depend on the maintenance of free carboxyl groups, i.e. level of etherification of carboxyl groups by methanol. The level of etherification determines the lineal charge density of a macromolecule, and, therefore, power and connection of cations. With reduction of the level of etherification (increase of charge of a macromolecule), the connectivity of pectic substances with cations increases. Therefore, it is possible to predict bigger complexing ability for Karina type than Aphrodite.

![Figure 2. Comparison of methoxyl component of pectin](image)

An important functional property of pectic substances in the food industry is gelling ability. Gelation depends on a polyuronide component, the level of etherification of its molecule and the maintenance of functional groups –methoxy and acetyl components. It was established that the composition of a polyuronide component is twice higher in the pectin emitted from Karina type (33.84%) than from Aphrodite type (15.51%). However, it is necessary to notice that the composition of polyuronide equally low that has an adverse effect on formation and durability of jelly. In order to evaluate the mechanism of gelation we defined composition of methoxyl groups (Figure 2). At methoxylation of pectin of 30 - 40% the composition of a methoxyl component made 2.4% of measured value against theoretical 5.2 - 6.8%. Pectin from Aphrodite type is capable of stronger jelly formation, based the higher etherification level, as this is related to a higher share of hydrophobic power in jellification. Thus, the part of the hydrogen binding which are formed freely and not etherified to carboxyl groups decreases. The acetyl component has an essential impact on the mechanism of jellification and strength of jelly. It was established that in both varieties the composition of the acetyl component was equally high (1.1%), considerably worsening the gelling properties of both Aphrodite and Karina types.

The content of organic acids don’t differ significantly across the two Cucurbita varieties (Figure 3). However, the fractional composition of tartaric acid is three times greater in Karina type than in Aphrodite type. Citric and lactic acids in both types are absent, and according to the content of malic acid they don’t differ (0.01%) and its content it very low. Rather high content of amber acid is revealed in both types (0.27-0.28%).
The fractional composition of sugars is not less topical for definition of a functional orientation of the studied types (Figure 4). Karina type had a higher sugar content than Aphrodite, with 8.1% and 5.7% sugar composition, respectively. Fractional composition analysis revealed 5.1% sucrose in Karina and 4.2% in Aphrodite, and the glucose content of Aphrodite type is 8.6 times less (0.12%), than Karina type (1.03%). The fructose content of Aphrodite type is 31.5% less than Karina type. The results of carotene analysis showed that Karina type yielded 450 mkg/100g carotene, compared to 400 mkg/100g for Aphrodite type. The contents of water-soluble vitamin C and niacin made up 14 and 0.1 mg/100g of pulp respectively. Vitamin B6 composition was low across the two varieties, accounting for only 0.02 mg/100g of pulp. The two Cucurbita varieties did not exhibit significant differences in vitamin composition.

The assessment of degree of daily provision with the main macroelements at consumption of Cucurbita fruits is given in Table 1. According to the data, the observed calcium provision of the sample material is prominent (4.4 - 4.5% of daily value) and magnum (3.3 - 4.7%). Provision of Kalium is insignificant with about 2%, and observed provision of phosphorus was also low at only 1.2%.
Table 1. Degree of daily provision of a human body by the main macroelements at consumption of Cucurbita fruits

<table>
<thead>
<tr>
<th>Studied figure</th>
<th>Karina % of daily provision of an organism</th>
<th>Aphrodite % of daily provision of an organism</th>
<th>Daily consumption by a human, mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalium mg/100 g</td>
<td>84,1</td>
<td>2,10</td>
<td>80,4 2,01</td>
</tr>
<tr>
<td>Magnesium mg/100 g</td>
<td>10,0</td>
<td>3,34</td>
<td>14,0 4,67</td>
</tr>
<tr>
<td>Calcium mg/100 g</td>
<td>26,5</td>
<td>4,41</td>
<td>27,2 4,53</td>
</tr>
<tr>
<td>Phosphorus mg/100 g</td>
<td>14,7</td>
<td>1,23</td>
<td>15,5 1,30</td>
</tr>
</tbody>
</table>

Table 2 shows the data on degree of daily provision with the main microelements at consumption of Cucurbita fruits. We observed that the degree of daily provision with iron, copper and zinc is low and within the range of 4.5-12% of daily value. Taking into account the requirements for functional food, the studied samples can’t be considered as a source of iron, copper and zinc.

Table 2. Degree of daily provision of a human body with the main microelements at consumption of Cucurbita fruits

<table>
<thead>
<tr>
<th>Studied figures</th>
<th>Karina % of daily provision of an organism</th>
<th>Aphrodite % of daily provision of an organism</th>
<th>Daily consumption by a human, mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron, mg/100 g (dry matter)</td>
<td>0,40</td>
<td>0,67</td>
<td>0,5 0,84 15-60*</td>
</tr>
<tr>
<td>Copper, mg/100 g (dry matter)</td>
<td>0,02</td>
<td>2,23</td>
<td>0,04 4,45 0,9</td>
</tr>
<tr>
<td>Zinc, mg/100 g (dry matter)</td>
<td>0,2</td>
<td>1,34</td>
<td>0,3 2,0 10-15*</td>
</tr>
</tbody>
</table>

(% of provision of an organism is calculated on the maximum daily demand of a human)

Conclusions

Both Cucurbita varieties examined in the present research exhibited high efficacy in production of pectic substances. The results of our study suggest that it isn’t expedient to use the pectin emitted by Karina and Aphrodite Cucurbita varieties as a gelation agent. However, the emitted pectin has good complexing ability of 290 – 400 mg of Pb^{2+}/g, which is important in developing highly-functional pectin products. Our results confirmed the necessity of further investigation of the chemical composition of the chosen varieties. Total pectin content was higher in Aphrodite type (21.8%) than in Karina. In both samples of the Cucurbita fruits, pectic substances were low-etherified, which defines their potential to use as detoxicator. It is known that etherification degree of pectic substances defines their complexing ability. At decrease in etherification degree, i.e. increase in a charge of a macromolecule because of increase in keeping of free carboxyl groups, communication of pectic substances with cations including toxic metals, increases. At the same time the stability constant of a pectate increases in the function close to logarithmic dependence. (Voragen, 1996). Besides, at decrease in etherification degree of pectic substances their radio tire-tread ability increases (Romanenko, Derevyago, 1991). It is necessary to note that daily demand of a human body for vitamin C is 50 mg. Taking it into account, it is clear that fruits of Cucurbita can be considered as a functional source of this vitamin for satisfaction of physiological requirement (extent of ensuring of daily requirement is 28%). Taking into consideration the recommended norms of consumption of the considered vitamins, level of provision at consumption of 100g of fruits of Cucurbita will make 50% of niacin and 1.0% of B6 vitamin. Thus, Cucurbita fruits are a functional source of vitamin C, niacin and carotene. Thus, we conclude that the selected varieties of Cucurbita are an example of highly-effective producers of stable pectin substances and functional foodstuffs. We have demonstrated that the pectic substances produced by these varieties have properties conducive to radioprotection and detoxification, which should be elaborated on in future investigations. Furthermore, the selected varieties contain functional quantities of carbohydrates, vitamin C, niacin, and carotene—indicating their value as a functional food.

Commercialization of those novel findings would lead to increased competitiveness of food industry, and, respectively, to enhanced food security.
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THE EU-CHINA COMPREHENSIVE STRATEGIC PARTNERSHIP IN CONTEXT OF EU GENERAL CONCEPT OF THE „STRATEGIC PARTNERSHIP“

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Abstract. Strategic (Comprehensive) Partnership, as a general concept and also as a specific foreign policy instrument for developing the European Union’s relations with key world countries (strategic partners), involves not only equivalent, mutually beneficial and institutionalized cooperation in many areas but also a joint solution to strategic (security and defense) issues and issues of regional and global governance where parties not only cooperate but also share responsibility. The objective of this article is to analyze the legal instruments (criteria) of the EU-China Strategic Partnership and to compare its character with the general legal concept of the EU Strategic Partnership. Based on this analysis we will answer the question whether the EU-China Strategic Partnership shows evidence of unclarity, imperfection and elusiveness of the EU’s Strategic Partnership.

Keywords: Cooperation, Partnership, Comprehensive Partnership, Strategic Partnership, EU, China, EU-China relations, Policy Papers


JEL Classification: P16, P51

1. Introduction

In previous research, we dealt with the general concept of the European Union’s (EU) Strategic Partnership. Based on the study of the founding treaties of the regional groupings as well as the documents of EU secondary legislation, we concluded that the foundation of this important instrument of EU external policies was not defined in such documents. Due to the fact that this tool is an instrument for promoting European goals and interests to key partners around the world (the United States, Canada, Japan, Russia, South Korea, China, India, Brazil, Mexico and South Africa). As the concept of the EU Strategic Partnership is often described as “unclear” (Sautenet, 2008: 11), “imperfect” (Palfasz, 2015: 7) or “elusive” (Maher, 2016: 959), we therefore tried to specify this concept ourselves. We did so on the basis of the elements typical for the EU’s practical approach to the Strategic Partnership, the context of the terms used in the Commission, Council and the European Parliament (Commission Policy Papers) and the European Security Strategy as well as the approaches of other authors (including Chinese).

Strategic (Comprehensive) Partnership, which expresses the high degree of maturity of relations between the two parties, is recognised as „a foreign policy concept, including both mutually beneficial and institutionalized cooperation of partner countries in many economic and non-economic areas, both, joint solutions to difficult
and strategic issues and challenges of global governance that have emerged as a result of mutual cooperation and concern only the specific issues and problems in which both parties work together but also share responsibility. Assumption of mutual cooperation between the parties, as well as common solutions to the challenges of different types, is to promote sustainable development, peace and stability, conformity in values (principles) and strategic interests of both sides, their common goals, commitments and procedures, all of those in the long-term and fundamental character. It is a response of global powers to the growing interdependence of the world, where cooperation of key partners is needed to maintain their shared values and interests on a global level “(Cihelková - Nguyen, 2017: 6).

In the European Union, the unspecified substance of the Strategic Partnership as a general category, on the one hand, and the fundamental consideration of the EU institutions and Member States on how to build up the Strategic Partnership with the key countries to create an instrument which would be “pivotal for addressing global challenges and safeguarding the EU’s core interests and objectives – mostly security and prosperity” (Renard, 2015), and, on the other hand, gradually improve interconnectedness Strategic Partnerships with legal documents that have determined the values, forms and content of the EU Strategic Partnership. These instruments have become: the way which the Strategic Partnership was formed in, the type of existing bilateral treaty base for mutual relations, the accepted normative concept, the areas and intensity of cooperation, and the concept of a multilateral international command. The general specification of these legal criteria of the EU Strategic Partnership concept was based mainly on such authors as: Carmen-Cristina Cirlig (2012); Urszula Pałłasz (2015); Thomas Renard (2015); Antoine Sautenet (2008). However, the EU’s fundamental documents - the Treaty of Lisbon (2009) / Consolidated version of the Treaty on European Union and the Treaty on the Functioning of the European Union, as well as the original (ESS, 2003) and innovated (ESS, 2009), Security Strategy - A secure Europe in a better world.

The application of the above-mentioned sub-instruments (criteria) to individual EU strategic partners has demonstrated a variability in possible partner approaches, hence the differentiation of key EU Strategic Partnerships with individual countries, which the EU itself classifies as: the essential; the pivotal - crucial at global level (Russia, China, Brazil, India); the natural allies - like-minded countries and traditional allies (Canada, Japan, South Korea) and regional partners - potential leaders in their regions (Cirlig, 2012: 3). Moreover, this differentiation affects not only the strategies which the EU is approaching and must approach to these partners with, but also shows the factual (real) lack of a unified form of the EU Strategic Partnership (compared to the unified general definition of the Strategic Partnership - see its own definition).

The objective of this article is:

- to analyze the EU-China Strategic Partnership on the basis of the legal instruments (criteria)
- to compare its nature with the general legal concept of the EU Strategic Partnership

Based on these steps, we will be able to answer at the end of the article whether the EU-China Strategic Partnership shows evidence to the unclearness, imperfection and elusiveness of the EU’s Strategic Partnership.

2. The legal fundamentals of the EU-China (Comprehensive) Strategic Partnership

2.1 The concept of creation of the EU-China Strategic Partnership

The creation of the EU-China Strategic Partnership in 2003 enabled the adoption of two Policy Papers. The first one was the Policy Paper “A maturing partnership - shared interests and challenges in EU-China relations” (COM (2003) 533 final), which was adopted by the European Commission in September 10th, 2003 in fact as its fifth announcement. The second was one the “Policy Paper on the EU” (CHG, 2003), adopted by the Chinese government on October 13th, 2003. The EU and China defined their relations as “maturing” and “more

\[1\] While the European Commission adopted the Policy Paper already as its fifth announcement to the EU Council and the European Parliament, China has adopted the Policy Paper as the first document ever of its kind towards a foreign subject.
strategic”. The EU’s Policy Paper on China states that „EU and China have even-greater interestto work together as strategic partners to safeguard and promote sustainable development, peace and stability; the importance of both attach to the role of the UN in physical and environmental security and (to gain from) further trade liberalization. “ (COM (2003) 533 final: 3). The China Policy Paper on the EU states that the EU will play an increasingly important role in both regional and international affairs.“The Chinese Government appreciates the importance of the EU and its members in developing relations with China. The same time it states that EU-China relations are dominated by agreements over disagreements, and emphasizes that China’s next goal is to enhance China-EU all-round cooperation and promote a long-term, stable and full partnership with the EU. (CHG 2003: 1-2).

While the EU’s policy paper included an evaluation of a new maturity in EU-China relations, and proposals updating the EU’s approach to China, China’s Policy Paper chose a different approach. This is not typical for the communities of many states with the Common Foreign and Security Policy, mostly of an interstate type², instead, it represents a common foreign and security policy of a national state. It is based on Chinese foreign policy, which on the one hand shares common interests with the EU, but on the other hand it insists on the application of principles that arise from different historical and cultural backgrounds, the political system and the level of economic development. For example, it unambiguously defines strict adherence to the “One Country, Two Systems” principle approach towards Hong Kong and Macao and the “One China” principle approach towards Tibet and mainly to Taiwan. EU proposals are designed to help drive policies and take EU action over the next two to three years, although China’s proposals are less elaborate but clearly defined by area of cooperation. According to the Chinese side, there is no fundamental conflict of interest between the EU and China, and both documents are commensurate and compatible (Cihelková - Nguyen, 2016).

Council of the EU endorses the Commission Policy Paper on Transmission to the Council and the European Parliament “A maturing partnership - shared interests and challenges in EU-China relations” on the same day as China adopted its Policy Paper. The EU-China Comprehensive Strategic Partnership was then reaffirmed at the 6th EU-China Summit at the end of October 2003. The Sixth China-EU Summit Joint Press Statement (Presse 298) brought an overview of existing relations in different areas, proposed a direction for the future development of EU relations China Summit and included a discussion on the different views and opinions of both parties. In terms of the establishment of the Strategic Partnership, China was the first country with which the EU established a partnership on a formal procedure basis in 2003.

2.2 The type of existing bilateral agreement framework for mutual relations

The Bilateral Framework which the development of the EU-China Partnership is based on, is the „Trade and Economic Cooperation Agreement“(TECA)³, which was signed in May and came into force in October 1985⁴. This agreement is non-preferential and is automatically renewed on an annual basis. It is an open agreement that does not exclude any form of economic cooperation linked to the EU’s competence. Economic cooperation covers several sectors and fields, including: industry, mining, agriculture, science and technology, energy, transport and communications and environmental protection. In order to fulfill the content of economic cooperation, various instruments are set up, among others the implementation of joint ventures, exchange of

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² Within the Common Foreign and Security Policy, EU Member States are almost always unanimous. The influence of the Commission is significantly reduced; the European Parliament has in fact no influence at all and the European Court of Justice is completely excluded from the CFSP. Implementation of specific decisions is largely in the competence of Member States.


⁴ Until 1974, economic relations between the European Economic Community and China were developed based on bilateral agreements between member states of the EEC and China. However, as the EC Commission was already in charge of the EC in 1974 and was responsible for economic relations, the Trade Agreement was negotiated in 1978 and came into force in June of the same year. It was a non-preferential five-year trade agreement, automatically renewable on an annual basis, where both parties granted most-favored nation treatment. It also included the Joint Committee. However, this agreement could not be considered effective taking into account the Chinese establishment and direction of the economy at the time.
economic information, joint research, cooperation between financial institutions, technical cooperation, seminars and symposiums, investment support and networking between entrepreneurs, business and industry officers, etc. The scope of the agreement is part of the program to assist developing countries in Asia and Latin America. In order to ensure the fulfillment of the agreement, the Trade and Economic Joint Committee was set up, on the level of European Commissioner for Trade and Chinese Minister of Commerce, its main task is to discover and verify new opportunities for the development of trade and economic cooperation and to elaborate relevant recommendations (For more information see Cihelkova, 2003 : 508).

TECA was at the time of the establishment of the EU-China Comprehensive Strategic Partnership only for the purpose of the development of trade and economic cooperation; there is no mention of partnership in this agreement. In addition, in the Commission Announcement in 2003, the partnership is defined as an aim, not a stage mutual relationship. For this reason, the Strategic Partnership, both on the basis of the indicative documents and on the evaluation of its development at the annual summits, has gradually become a „soft law“ instrument that helps to complete and re-evaluate the legal framework for relations between the EU and China. It is part of the EU’s generally used instruments towards strategic partners, unilateral global acts, sectoral bilateral acts and sectoral dialogues and political dialogues, including Human Rights. TECA, although it is the basis for the development of trade and economic cooperation between the two parties, has long been overcome by real cooperation and does not reflect the nature of the mutual relationship. The development of the EU-China bilateral relationship so far requires a more comprehensive agreement covering not only all-dimensional, vide-ranging and multi-layered cooperation, but also, in particular, specific strategic and security activities developed in partnership.

Taking into account the fact that the development of the EU-China bilateral relationship so far requires a more comprehensive agreement, the parties decided on the 9th summit in 2006 to commence negotiations on a new Partnership and Cooperation Agreement (PCA) to create the base of EU-China relations for the 21st century. The PCA should “reflect the full breadth and depth of today’s comprehensive strategic partnership between the EU and China ... encompass the full scope of their bilateral relationship, including enhanced cooperation in political matter” (Presse 249). Efforts to create the basis of the EU-China relationship on a more comprehensive legal framework motivated both parties to reach positive outcomes in the negotiation. After successful initial negotiations, “the negotiation turns out to be less than straightforward and has been deadlocked for years” (Shaohua, 2015). Yan Shaohua sees the causes of this situation in the factors that “restrain the win-sets of the two parties”.

The very immediate reason of the agreement was the very complexity of the agreement, which should be a mixed agreement negotiated and ratified by both the EU institutions and the EU Member States institutions, each of them has veto power. Inconsistent country approaches and disagreements between countries and EU institutions complicated negotiations and weakened the EU as a trustworthy partner of China. Several external factors linked to the year 2008, has led to the freezing of the negotiations: the Tibetan disturbance in the spring of 2008 and their conviction by European countries, Europe’s call of the boycott of the Olympic Games in Beijing, and President Sarkozy’s meeting with the Dalai Lama contributed to the freezing of the negotiations. The main obstacle to the PCA’s negotiation is the different preferences of the EU and China regarding the form and content of the agreement.

From the EU point of view favors for a single comprehensive agreement that will upgrade the 1985 TECA and encompass both the commercial and political dimensions of the relations. For China, it is more advantageous than concluding a comprehensive legal-binding bilateral agreement, either maintaining the current status of a mutual or negotiating two treaties. EU-China relations have achieved a high degree of institutionalization, inter alia through multi-level dialogues, various bilateral agreements and policy documents. The cost of creating a new institutional framework would therefore be higher for China than the cost of no-agreement. Due to the content sensitivity of a number of negotiated issues, China seeks to separate the trade and economic issues from the political agreement. It would therefore like to have two agreements, and updated TECA and PCA, with the essence of TECA being incorporated into the chapters of the PCA. This approach is not corresponding with the European approach, but even if China succeeded in convincing the EU to negotiate a separate economic and separate political agreement, there are large content obstacles to compliance in both areas (Shaohua, 2015).
The EU’s commercial and political interests are different from Chinese. In terms of trade and commerce the major interest of the EU is to press China to fulfill the WTO obligations, and protect its trade and investment in China. The EU would like to deal with trade deficit, exchange rates, export restrictions on raw materials, market access, Intellectual Property Rights, service, investment, subsidies, government procurement, norms and standards. In regards the political dimension, there are also some very sensitive issues regarding democracy, human rights, the rule of law, Taiwan, the arms embargo, non-proliferation, disarmament, and the International Criminal Court. The EU also links trade with political matters of human rights and democracy. All of these issues do not belong to China’s priorities; China approaches them with limits and with different emphasis. In particular, China deal with EU’s anti-dumping measures, anti-subsidy, safeguards, technical barrier to trade and other restrictions. Especially China aims to obtain the EU Market Economy Status (MES) and elimination of the arms embargo. The EU refuses to grant the MES to China due to political considerations and the large trade deficit with China. The EU does not even think about elimination of the arms embargo linked with the human rights issues. Regarding the political area, China is sensitive on “sovereignty issues” regarding Taiwan and Tibet. (Shaohua, 2015).

All these facts are decreasing the EU’s as well as China’s win-set. Therefore, in 2013 the negotiation of at least a more specified agreement was initiated- a comprehensive EU-China Investment Agreement; formally commenced in January 2014. The agreement will provide for the progressive liberalization of investment and the elimination of restrictions to investors to each other’s market. It will provide a simpler and more secure legal framework for investors of both parties by securing predictable long-term access to EU and Chinese markets, and providing strong protection to investors and their investments. This agreement should replace the existing 26 Bilateral Investment Treaties between EU Member States and China (EU, 2016).

2.3 Accepted normative concept

The European Union and the ROC are very different partners which differ in cultural, political and economic terms. The EU is an individualist, democratic, postmodern and economically developed society, based on values such as democracy, the rule of law, human rights and the recognition of the principles of international law. China is a collectivist society based on a leading party dictatorship of Leninist origin, which does not fully accept the individual rights and freedoms of citizens and ethnic and cultural minorities, and a post-totalitarian society experiencing its lagged economic development. Differentiated character of both sides means also the difference of shared normative concepts by both parties. The EU recognizes so-called “normative convergence”, which identifies respect for the fundamental values on which the EU is established, is developing, and is also one of the aims of its foreign policy (the spread of values in the world). China rejects several standards, principles and values defined the identity of EU and profess the unconditional engagement, where the basis for the development of mutual cooperation becomes enduring and mutually beneficial relationship of equals.

Despite of certain steps taken by China towards political liberalization (partial loss of state control over the economy, overcrowding of political reforms, continued political stability, industrial development, national loyalty and social cohesion, a more open and democratic system), we cannot expect that a western-style political system will appear soon here. The Communist Party of China (CPC) considers democracy to be inappropriate for China and Western values to be dangerous and subversive to China’s social cohesion and stability. Richard Maher (2016) states that in Document No. 9, the CPC specified the “seven dangers” that pose a threat to party authority, including, in particular, western constitutional democracy; the promotion of universal values of human rights; western-inspired ideas of news media independence and civic participation; strong pro-market or neo-liberal economic policies; and nihilist criticisms of the Communist Party’s past. The organization “Freedom House” rated China as “not free” in its 2016 World Freedom Report, with one of the lowest scores in the world regarding the elections, political pluralism and the government participation and performance (see Table 1).

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5 The 13th Round of Negotiations took place in May 2017. The next round of negotiations is scheduled for July 2017.
Table 1: The level of freedom in selected countries in 2016

<table>
<thead>
<tr>
<th>Country</th>
<th>Stand for political rights (PR)</th>
<th>Stand for civil liberties (CL)</th>
<th>Aggregate Score (AS)</th>
<th>Freedom Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden*, Norway*, Finland*, Iceland*</td>
<td>1</td>
<td>1</td>
<td>100</td>
<td>Free</td>
</tr>
<tr>
<td>Japan*</td>
<td>1</td>
<td>1</td>
<td>96</td>
<td>Free</td>
</tr>
<tr>
<td>Germany*</td>
<td>1</td>
<td>1</td>
<td>95</td>
<td>Free</td>
</tr>
<tr>
<td>USA*</td>
<td>1</td>
<td>1</td>
<td>90</td>
<td>Free</td>
</tr>
<tr>
<td>Taiwan (ROC)*</td>
<td>1</td>
<td>2</td>
<td>89</td>
<td>Free</td>
</tr>
<tr>
<td>India*</td>
<td>2</td>
<td>3</td>
<td>77</td>
<td>Free</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>5</td>
<td>2</td>
<td>63</td>
<td>Partly Free</td>
</tr>
<tr>
<td>Singapore*</td>
<td>4</td>
<td>4</td>
<td>51</td>
<td>Partly Free</td>
</tr>
<tr>
<td>Russia</td>
<td>6</td>
<td>6</td>
<td>22</td>
<td>Not Free</td>
</tr>
<tr>
<td>China</td>
<td>7</td>
<td>6</td>
<td>16</td>
<td>Not Free</td>
</tr>
<tr>
<td>North Korea</td>
<td>7</td>
<td>7</td>
<td>3</td>
<td>Not Free</td>
</tr>
</tbody>
</table>

PR, CL – 1 represents the most free and 7 the least free rating.
AS – 1-100 A larger aggregate score indicates a greater level of freedom.
* – Indicates a country’s status as an electoral democracy.
ROC – Republic of China.


Different political values, shared by both sides, create a dilemma for European policy-makers whose task is to reconcile the values, which underpin EU identity and foreign policy with attempts to create a Comprehensive Partnership with a non-liberal country. The conflicting values and principles are reflected in the differentiated strategic interests and priorities of both parties, in diverging views on current security issues and visions of the future world order (Filip, Filipová, Kabát, 2016). While ten years ago China perceived the EU as an emerging political force, a potential pole in the multipolar world, today it is aware of the EU’s limited position as a strategic partner in world politics, and of the fact that there is no common opinion among the EU Member States on the extent, Of EU-China relations. That is why China seeks to deepen cooperation with individual EU members than with the EU as a whole encouraging political contradictions in Europe and openly following a divide-and-rule strategy. Also, member states often prefer individual advancement of relations with China, even at the expense of common policies and initiatives within the EU. While the EU and China have made significant progress in the past two decades, notably in the growth of mutual interdependence, the Strategic Partnership remains the instrument by which the EU tries to deepen and broaden its trade relations and to support China in reducing its export subsidies and opening up the domestic market For foreign investment, rather than persuading Chinese leaders that such standards and principles, such as democracy, human rights and the rule of law, are in China’s own long-term interest, or that instead of changing the current international order, China should Into this order to integrate. The Strategic Partnership should also lead to the management of tensions and disputes between the EU and China in areas where their strategic interests and priorities do not overlap or are inconsistent (Maher, 2016: 975-976).

2.4 Areas and intensity of cooperation

Since 1995, when the EU adopted its first China Policy Paper “A Long-Term Policy for China-Europe Relations”, by the end of 2002, where implemented the Comprehensive Partnership with China and steps has been taken to pursue for future and effective policy towards China; an institutional basis for the development of EU-China partnerships has been established and developed cooperation on a wide range of issues at both bilateral and multilateral levels. Since 2003 to the present, the concrete results of mutual cooperation have been derived from “soft law” acts negotiated within the EU-China Strategic Partnership.

As a result of the EU-China trade dialogue, developed since 1996, conclusions have been reached on specific
bilateral sectorial agreements in areas of common interest. It was especially science and technology, trade and nuclear safety, maritime transport, air transport and customs. In 1997, both parties signed the EU-China Memorandum of Understanding on the Programming of EU-China Cooperation Projects. In 1998 it was signed and in 2000 the Agreement on scientific and technological cooperation came into force. This specific agreement should be concluded in order to enhance and expand cooperation in fields such as energy, environment, life sciences etc. In this context, the Commission proposed in 2000 to transform the current Telecoms Working Group into an Information Society Working Group. In 2000 also started dialogue on a potential China-Euratom Cooperation Agreement on the Peaceful Use of Nuclear Energy Safety in the framework of the Euratom Treaty. An EU-China Maritime Transport Agreement was signed in 2002 to improve market access conditions for European operators in China. The Memorandum of Understanding between the Commission, China and the European Association of Aeronautical Industries on Industrial Cooperation in the Aeronautical Sector launched cooperation in the field of air safety, environment and infrastructure; they commenced negotiations concerning China’s participation in Galileo Satellite Navigation Program. The Commission was also mandated to negotiate an agreement on customs cooperation and mutual administrative assistance. This agreement should provide the basis for facilitating trade and combating customs fraud. (COM (1998) 181 final: 16-17).

The Sixth China-EU Summit Joint Press Statement (Presse 298) brought an overview of existing relations in various fields, suggested direction for future development of EU-China relations and included discussion of the various views and concerns of both sides. The strategic nature of the partnership can be seen not only in the above-mentioned statements of both parties, but also in the instruments through which the subsequent cooperation has been realized. It was on such acts as; Agreement on cooperation in the Galileo Satellite Navigation Program (2003); Industrial Policy Dialogue; Dialogue on Intellectual Property Rights (2003); The Memorandum of Understanding on the Approved Destination Status (2004). Based on defined guidelines for the future development of EU-China relations were in late 2004 signed a Joint Declaration on Non-proliferation and Arms Control; EU-China Customs Cooperation Agreement; Agreement on R & D Cooperation on the Peaceful Use of Nuclear Energy; and in 2005 a Memorandum of Understanding on Labor, Employment and Social Affairs; Joint Statement on Cooperation in Space Exploitation; Science & Technology Development and Joint Declaration on Climate Change. At the end of 2005, 1st EU-China Strategic Dialogue took place in London. In 2006, followed by the signing of the Memorandum of Understanding on Food Safety and Memorandum of Understanding on Cooperation on Near-Zero Emissions Power Generation Technology (on that occasion, held the first consultations under the Climate Change Partnership); It was initiated by the EU-China Dialogue on Regional Cooperation and created Dialogue on Africa’s peace, stability and sustainable development. The Joint Press Statement (Presse 298) revealed that the Sino-European Strategic Partnership should not only be clear and obvious issues but also issues that have so far had a negative impact on the development of mutual relations. These include, for example, an arms embargo age in China, the position of the market economy in China under anti-dumping investigations, respect for international human rights standards, etc. During PCA negotiations and even after the interruption, develop other instruments, such as the Macroeconomic Dialogue (2006); EU-China Civil Society Round Table (2007); High Level Economic and Trade Dialogue (2007); Between the EAEC and the Government of the PRC for R & D Cooperation in the Peaceful Uses of Nuclear Energy (2008); High Level People-to-People Dialogue (2012); Partnership on Sustainable Urbanization (2012); Join the EU-China Innovation Cooperation Dialogue (2012), the EU-China Higher Education Platform for Cooperation and Exchanges (2013) and others.

Another milestone was reached in 2013, when at the 16th EU-China summit held on 21 November agreed by the EU and China, “EU-China Strategic Agenda 2020”, which is currently a key document for the development of mutual relations. The Strategic Agenda provides a list of key initiatives that should be achieved. It covers every possible aspect of cooperation: human rights, trade, oceans security, agriculture, space and aerospace and many other areas. After introduction of this document mutual cooperation became more institutionalized and developed. The following signal for closer bilateral political cooperation, leading to a coordinated strategic approach to addressing global challenges and threats, became the 17th EU-China summit, which was held on 29 June 2015. Both sides agreed on the priorities for strengthening bilateral cooperation and deepening the global dimension of their Strategic Partnership.
The institutional basis, which has been gradually emerging since 1995, has resulted in the EU becoming China’s largest trading partner and China’s second largest trading partner in the EU. The EU and China have become the two largest trading partners in the world. At the same time, they represent two major investment partners. Business and investment relations are the basic source of economic growth, employment, development and innovation for both parties. Since the Strategic Partnership means not only equivalent and mutually beneficial cooperation between partners but also a joint solution to the challenges that arise as a result of the changing conditions of the bilateral, regional and global dimension and the sharing of responsibility for this solution, the EU-China Strategic Partnership is also witnessed by a number of Joint efforts to work together on global issues, including jointly strengthening United Nations’ role in promoting world peace, security and sustainable development, strengthening human rights co-operation, coping with trans-national challenges in the field of justice and home affairs, Chinese reforms, developing dialogues in key sectors such as energy, environment, regulatory and industrial policy, information society, competition, intellectual property rights, macroeconomic issues, health, employment and education. (Zhou, 2016).

Strategic partnership gradually included foreign affairs, security issues and international challenges such as climate change and global economic governance. In general, the basic elements of the Strategic (Comprehensive) Partnership are both shared interests in global and regional issues, as well as common and diversified approaches in the context of mutual ties. EU-China coordination should be strengthened in particular insuchareas such as the G20, security and defense, the fight against terrorism, illegal migration, transnational crime, nuclear non-proliferation, global and regional security, cyber-security, weapons of mass destruction, energy security, global financial sector and market regulation, climate change as well as urban development, development and aid programs and sustainable development(Kováč, Hudákóvá, 2015). From the above it follows that Strategic Partnership allows EU-Chinese relations to move forward. In many areas, there are both convergence and divergence between the two sides. It is these differences, which affect mainly trade relations, the implementation of human rights and the arms embargo mean that China is among countries so-called: Pursued with WTO countries, interest-driven and limited cooperation.

2.5 Understanding the multilateral international order

While the EU Strategic Partnership perceived generally as a tool for the development of effective multilateralism (system with well-functioning international Institutions and rule-based order), China Strategic Partnership is considered primarily as instrument to achieve multipolarity⁶ in the world. Chinese officials suggested the use of this term in 1998, when it included in the 1st EU-China Summit Joint Declaration. Term was rejected mainly by representatives of Great Britain, defending more than other EU countries, the interests of the United States; but other EU Member States do not trust this term either. Before 2003, China’s Foreign Ministry said, according to Jing Mena (2007: 9) that multipolarity “helps weaken and curb hegemonism and power politics, serves to bring about a just and equitable order and contributes to world peace and development.” China has made it clear, without naming anyone, that multipolarity policy is designed to balance American power. After 2003, China began to trust more in the multilateral system and move from a purely bilateral to a multilateral approach. The Chinese government has changed the interpretation of this category by highlighting such elements of multilateralism as the democratization of international relations and the strengthening of coordination and dialogue that bring it closer to the EU’s understanding of international relations. With this changed approach, China began to focus more on multilateralism in international politics in the 21st century.

Nonetheless, significant differences can be found between the EU-China approaches to multilateralism. The EU identifies multilateralism by respecting universal values, shared sovereignty, and normative foreign policy that leads other countries to change their behaviors through agreement and conditionality. China attaches great importance to the principle of state sovereignty and non-interference in the internal affairs of other countries.

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⁶ Multipolarity means the distribution of power between more than two participants of the system. These participants concluded between alliances based on common interests and objectives, as well as the agreed rules. These alliances are constantly changing. No participant has the power to control the entire system, although there are attempts to achieve such an objective.
on human rights and humanitarian intervention. The difference is also what the two partners understand as “effective multilateralism”. In the case of the EU, it is a general reference to “rule-based multilateralism,” in the case of China only “multilateralism that works”. Different concepts, such as the concept of democratization or security, are perceived differently by both parties. When Europeans speak about democratization, they focus on everything that strengthens civil society, the rule of law, and respect for human rights, whereas the Chinese mean responsibility, responsiveness, and the responsibility of the authorities. Europeans have a more comprehensive concept of security than China and also have a wider range of tools to react to (particularly in the area of civilian crisis management), including mediation. (See, for example, Grant, 2012, or Geeraerts, 2013).

Sovereignty of the state understands both the EU and China as the right of the state to exercise unlimited power in its territory. However, in the case of the EU (and some other international organizations and regimes), the territorial sovereignty has ceased in the 20th century, when the Member States transferred part of their decision-making power to supranational institutions, when, as a result of increasing internationalization and globalization and deepening institutionalization, corporate decisions are made at a global level, and policies of other states, due to interdependence, have significant influence across borders (Keohane, 2002: 74). While China shares the original interpretation of sovereignty, based on sovereign states, national interest, and the use of military force as a legitimate means of political struggle, the EU is an organization with legislative powers within the community and legal subjectivity to other states and organizations. So today, neither the individual Member States nor the EU as a whole has sovereignty in the original sense. That is why the EU is often referred to as a post-sovereign (post-Westphalian) arrangement where sovereignty is divided between different territorial levels. There are very intense discussions about the effectiveness of this state and attitudes of citizens, which result, among other things, in Brexit.

Regarding the admissibility and legitimacy of interfering with the internal affairs of other states regarding human rights and humanitarian foundations, in the EU’s view, foreign intervention can be necessary to prevent or halt gross violations of human rights and related crimes. In China’s view, any interference with the internal affairs of states is unacceptable. China builds on its own experience of intermingling foreign powers into its internal affairs, which remains a source of national humiliation and resistance, and it is itself exposed to external criticism regarding both the Chinese political system and some practices such as political depression, denial of religious liberties, treatment of the Tibetan and Uighur ethnic minority, etc. According to the principle of non-interference in international relations, China seeks to assist the needy countries without interfering in internal conflicts. This is particularly evident in the case of civil war in Syria. Commercial agreements or financial loans to other countries are not linked to human rights requirements or governance institutions (strictly separates business from politics). This fact is also considered in the provision of development cooperation in Africa, Asia or Latin America, which it provides without any conditions. For this reason, some of the countries that originally addressed the request for EU development cooperation are now increasingly asking China. This principle also means that China is ready to protect its export markets and ensure access to raw materials through partnerships with regimes which the EU and other Western countries avoid (e.g. Angola, Sudan, Venezuela and Zimbabwe). On the other hand, China, as a permanent member of the UN Security Council, was forced to make decisions interfering in internal affairs. He is the largest contributor to UN peacekeeping operations and mediates peace talks between the Taliban and the Afghan government during the Civil War.

The above differences are reflected in the foreign policies of both parties.

In the case of the EU, it is a “Common Foreign and Security Policy” (CFSP), from which it is necessary to distinguish the “EU’s external relations”. The main fault line between CFSP and external relations is the different way of involving the EU institutions and a different way of decision making. Although the Lisbon Treaty abolished the pillar structure of the EU and tried to unify the external representation of the EU’s external activities across, different rules for deciding the CFSP, of course, retained. Under the CFSP, the EU cannot take

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7 This discussion was strengthened especially in the context of overcoming the financial and debt crisis in the Eurozone, when the nature of the crisis and the difficulties in resolving it again confirmed the absence of sovereign power in the EU.
any legislative action. This means that all decisions apply only to specific situations and do not have general validity. EU Member States are almost always unanimous about decisions. The impact of the Commission is significantly reduced, the European Parliament has virtually no influence at all and the European Court of Justice is completely excluded from the CFSP. Also, the implementation of specific decisions lies primarily with the Member States. For Member States, they are binding, but given that European law does not know any penalties for violations, the pressure on them is only political - the states are driven by an effort to remain a reliable partner. Differences, overlaps and even conflicts of interest between individual EU Member States weaken the EU’s position as such in this area. In external relations, the EU has a legitimate power, including the presence of legislative institutions, standing above national states, both in regional and global issues. The manifestation of this sovereignty is the encouragement of regional cooperation with other parts of the world for which the group-to-group approach has come, and the support of international multilateral institutions. Yet in external relations with partner countries involved in essentially different way than they do other world powers, which are nation-states. The difference is both in the usefulness of these relationships (the partners are not chosen by the Member States, but by the European institutions according to their advantage, and they are trying to change them to their own image - the principle of cross-compliance) and inconsistent with the substance of the EU foreign policy, which is the result of compromises between Member States, but is carried out by non-state EU representatives. (Filip, Filipová, Supeková, 2016).

China’s foreign policy is a policy that relies on the traditional (territorial) concept of state sovereignty (which is even called the hyper-statist state). It consistently maintains the principle of respect for China’s sovereignty, independence and territorial integrity and non-interference in China’s internal affairs, on which the relationship with Tibet is based. The transition of Hong Kong under the Chinese government in 1997 and Macao in 1999, and the restoration of Chinese control over both territories, as well as the sensitive issue of Taiwan’s independance, need to be assessed in the context of a long-term and continuous state-building process. In the case of Hong Kong and Macao, the Chinese government applies the “One Country, Two Systems” principle and the provisions of the Basic Law, meaning that for the next 50 years (until 2047 and 2049 respectively), the so-called “Special Administrative Areas of the PRC” The capitalist system and lifestyle, the administration will be carried out by their inhabitants and a high degree of their autonomy will be preserved. China considers Taiwan one of its provinces and pursues a policy of “One China”, which recognizes the unity of Taiwan with mainland China. The principle of sovereignty is very important for China, since it is considered to be a state that is not only developing economically but also promoted in certain territories. Therefore, it is prepared not only to acquire, maintain, but also by power to control its territory. This applies not only to the relationship with its closest neighbors, but also to the territorial disputes in the South China and East China Sea as well as to the global regimes. Otherwise, China seeks a non-conflicting international environment, primarily driven by economic priorities; the concept of conflict (peaceful), foreign policy (except Taiwan), preferring called Soft-power (the ability to influence the behavior of others through challenges, not coercion, using standards, cultural and political values and foreign policy) before the hard power (military force - coercive diplomacy, war, alliance using threats, intimidation and protection; economic power - aid, bribes and economic sanctions to coercion). The distinction between Chinese foreign policy is evident not only in the applied principles and strategic intentions, but also in the characteristics of this policy (conservatism, self-esteem, use of personal knowledge, non-quantitative economic policy).

It follows from the above that the EU and China have different attitudes to the key aspects of global policy. They are converging to a certain extent, but they are increasingly leading to tensions and disagreements. See, for example, Fürst (2007: 7-11). Richard Maher (2016: 971) questions the extent to which China has so far adopted the current international order, including the institutions and world-wide rules, and to what extent it will seek to change or even replace it in order to reflect better its growing economic and political significance. The answer is based on China’s role in international organizations, the emergence of the Chinese model of authoritative capitalism, which embraces some emerging and developing economies as an alternative way to modernization, and other arguments.

Regarding the United Nations (UN), the only universal international organization, China became in 1945 a Memorandum country. Until 1971, the only representative of China in the United Nations and related organiza-
tions of the international community was the Republic of China, which at the time of the United Nations had dominated mainland China, and even after the civil war and the departure of Kuomintang to Taiwan, it represented the interests of all of China. The new stage of Chinese influence on the international community began in 1971, when the People’s Republic of China replaced China in the seat of the General Assembly and the UN Security Council. After the reform effort and the opening of the country in the late 1970s, it gradually changed its approach to the organization, from hesitant engagement to support the international multilateral system. In this arena, the EU and China in principle support in terms of peace and security issues and the fight against terrorism. They support each other in other matters that are in accordance with the above general principles (e.g. solving the North Korean nuclear crisis). On the other side if the issues discussed do not correspond to the general principles, EU and China policies differ (such as the resolution of the Iranian nuclear crisis at the end of 2005). China is keen to cooperate with the EU, not only in matters of self-interest, but also in addressing key strategic issues of international politics that lead to a peaceful and stable world environment (Men, 2007: 10-11).

China’s membership in other international organizations has increased rapidly since 1978. While in 1977 there were total of 21 governmental organizations and approximately 71 non-governmental organizations, in 2000 numbers increased to 50 governmental and more than 1,200 non-governmental international organizations. As far as the major international financial organizations are concerned, their authorities as well as the formation of international rules are in the hands of the US, the EU and other developed countries. These include, in particular, the International Monetary Fund (IMF), the World Bank and the Asian Development Bank (ADB), whose leadership has long been dominated by Europeans, Americans and Japanese. China’s role is not reflecting its current economic and political power, so Chinese officials are calling for the redistribution of decision-making powers. Significant progress was achieved in 2010, when the G20 leaders’ summit reaced agreement on IMF quota and governance reform which would have raised China’s IMF quota share from 3.65% to 6.19% (Maher, 2016: 974), therefore changing the base for leadership position in terms of nationality. In 2015, the IMF also decided to add the Chinese yuan into the main world currencies basket. Chinese Yuan will have a 10.92% share in the basket. It will have more weight than the Japanese yen and the British pound. The share of the euro will be reduced to 30.93% from the current 37.4% as a result of the basket expansion. The share of the dollar will fall only slightly to 41.73% from 41.9% (iDNES.cz, 2015). By the end of the 1980s, the PRC was effectively an ally of the United States. In the 1990s and especially after 2000, China’s initiative on international issues has grown with China’s economic influence - not just on the UN soil. On one hand, unilateral US foreign policy, military intervention under the auspices NATO and, on the other hand, the common interests and principles of foreign policy of Russia and China have led to the convergence of both countries also in the UN Security Council negotiations, in which (not a priori) they oppose United States more frequently. As a consequence of the increase of China’s membership in international organizations, as well as the first steps to strengthen China’s position in IMF, China was increasingly involved in international affairs and showing its willingness to participate in global decision-making, for example, by the establishment of The New Development Bank BRICS (NDB BRICS), or the Asian Infrastructure Investment Bank (AIIB). Both banks, which create an alternative to the World Bank and the International Investment Fund (with the USA playing a decisive role), started their operations in 2015 and China will play a decisive role in both projects. NDB BRICS’s purpose is to finance development projects in the BRICS and other developing countries, for instance in Africa. AIIB’s purpose is to finance road constructions, railways, power stations, or telecommunications networks in Asia in order to accomplish the “One Belt, One Road” project. We assume that the impetus for the creation of these banks, especially the first one, is the dissatisfaction of developing countries with a slow reform of both international organizations, especially with regard to the redistribution of votes in favor of less advanced economies. Another reason is that both international organizations are under strong influence of developed economies. Moreover, while the World Bank reallocates its votes according to the capital invested, in NDB each member has one vote, and no one has the right to veto. In AIIB, China, along with new members, is likely to be able to block some decisions. Currently, China itself holds 26% of the vote share. A two-thirds majority of votes is needed to adopt the AIIB’s key decisions.  

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8 China has been a member of WTO since 2001.
2. Conclusion – Does the EU-China Strategic Partnership demonstrate the ambiguity, imperfections and imperfections of the EU Strategic Partnership?

Deeper examination of the nature of the EU-China Strategic Partnership allows us to draw a few conclusions on the second objective of this paper, its comparison with the general concept of the EU Strategic Partnership. Regarding the foundation of Strategic Partnerships, the EU’s objective is to build these partnerships on the basis of a formal procedure, which started with the Commission making a formal proposal, usually through a Commission communication. Then, the proposal was transferred to the Council of the Member States for their approval to establish the partnership. The EU Parliament was asked for its opinion, and then, in agreement with the partner, a joint statement was made to formally announce the partnership (Pałłasz, 2015: 5). The EU-China Strategic Partnership was launched as the first partnership based on such formal procedure. Some earlier partnerships have been announced without any formal document or procedure (US, Canada, Japan, Russia), and there is also a strategic partnership that was announced only within the summit of both parties in the Joint Statement Declaration (South Korea). The formal procedure has also become the basis of several other EU strategic partnerships with emerging countries (India, South Africa, Brazil, Mexico), but it is also a way towards a unified way of establishing future EU Strategic Partnerships.

The EU’s objective is to develop a strategic partnership with each country on the basis of a single regulatory framework based on three agreements: the Free Agreements (FTAs), allinclusive politicalagreements (the Strategic Partnership Agreements (SPAs) and the Security Agreements, Which would enable partners to participate in the Framework Participation Agreement (FPA), see Renard (2015). As far as China is concerned, its bilateral contractual framework is very far from the EU’s vision. In bilateral relations, the Trade and Economic Cooperation Agreement prevail from 1985, which does not reflect the scale and depth of the current EU-China Strategic Partnership. The EU-China Strategic Partnership, therefore, since beginning has become a soft law tool that Saunened (2008: 12) defined as „rules of conduct which lie in a sphere which is legally non-finding (in the sense of restrictions and sanctions), but which according to the intention of their author, must be considered as being part of the legal sphere“. These instruments, as mentioned above, are unilateral global acts (communications, country strategy papers, multi-annual programs), bilateral global acts (joint declarations during the annual summits), sectoral bilateral acts (Memorandum of Understanding, sectoral agreements), and sectoral (economic) and political dialogues. In this sense, the EU-China Strategic Partnership has a parallel status with the EU legal system. The new FTA faces a number of content barriers for consensus, for instance the fulfillment of obligations resulting from China’s WTO membership, and therefore a tighter EU-China Investment Agreement is being negotiated. PCA talks were frozen during the first decade of the 21st century. For the negotiation of the bilateral SPA, no objective conditions have yet been created, although in 2016 both sides confirmed their intention to strengthen consultations and cooperation on foreign and security policy in the Framework of the EU-China High-Level Strategic Dialogue (disarmament and non-proliferation; fight against terrorism; regular exchanges on Africa, the Middle East, Central Asia and Latin America). China and the EU will help to to binding a stronger and more effective multilateral system based on the UN Charter and international law to face increasing global challenges and promote the peaceful settlement of international disputes. (EU-China Summit joint statement, 2015). However, not all EU Strategic Partnerships are based on a contractual basis (USA, Japan). If a contractual arrangement exists, it is very diverse. Agreements range from second-generation agreements that take the form of either the Partnership and Cooperation Agreements (Russia) or the various types of Framework Agreements for Trade and Cooperation (Brazil, India, South Africa) through the Comprehensive Third-Generation Free Trade Agreements (Canada) Association Agreement (Mexico). The only country that has signed all the “ideal-type” agreements with the EU is South Korea. (Cihelková – Nguyen, 2017).

The keystone of the EU’s Strategic Partnerships should be based on a shared concept of “normative convergence”, for example respecting values (democracy, rule of law, human rights, principles of international law), on the basis of which the EU has emerged, developed and further developed on a global scale. Together with the EU, the same values are shared by the United States, Canada, Japan, South Korea, although not all partners have common strategies. Mexico, Brazil, India and South Africa are also based on normative convergence
but interpret common values in a different way. The different nature of the EU and its partners from a political, economic, cultural and other point of view leads to the sharing of different normative concepts. China underscores “unconditional engagement” by the EU and considers the “enduring and mutually beneficial relations of equals” as the values it intends to apply. Russia is based on its normative concept of “unconditional engagement” and considers common interests as the core value. Sharing different political values between partners, in their nature, results in differences in their strategic interests and priorities, in opinions on security issues in the world, and the vision of the world order. These differences are manifested in various disagreements and tensions. In doing so, the Strategic Partnership should be the main tool for overcoming disputes and coordinating efforts to promote common interests over the interests of individual parties. Strategic partnership is a tool that improves quantitative and qualitative development of involved parties. The EU strives for an all-dimensional, wide-ranging and multi-tiered cooperation with all its partners. Given that China is based on political values and norms that limit not only mutual cooperation but are also reflected in the political and strategic dialogue on regional and global relations and governance, its relations with the EU are generally limited. Some areas of cooperation and partnership are insufficiently addressed; others are in principle difficult to solve. Especially such difficulties reduce, eventually eliminate (win-sets) relations of the two parties. The EU-China Strategic Partnership is not as effective as those partners who have achieved and have a very comprehensive partnership with the EU in many areas and are “irreplaceable” (USA), “like-minded” with “all-inclusive cooperation” (Canada), with “high degree of coordination and cooperation in multilateral fora” (Japan, South Korea, Mexico). China, however, is not the only partner with which the EU achieves limited cooperation. These partners include four other countries that do not fully exploit the potential for mutual relations, either in principle for the same reasons as China (Russia) or for reasons of different interests (India, Brazil) or regional interests of partner (South Africa).

Finally, the EU considers the Strategic Partnership as a commitment to global governance, based on well-functioning international institutions, international law and shared rules. China is one of the EU’s partners who perceives partnership and comprehensive partnership as a means of achieving multipolarity and balancing the hegemony / dominance of the United States of America. China’s pro-economic economic role in the 21st century as well as the approach of its strategic partners gradually shaped China’s international policy towards multilateralism. But China perceives it differently than the EU. The basic difference is, as mentioned above, the principles of identifying multilateralism and effective multilateralism as well as the concept of democratization and security. The fundamental difference between the EU and China is the views on the sovereignty of the state and the admissibility and legitimacy of interfering with the internal affairs of other states, Humanitarian foundations. These differences are reflected in the diversity between the EU’s CFSP and China’s foreign policy. In particular, the differences in applied principles and strategic intentions lead to the EU and China adopting different attitudes towards key aspects of global politics. They are converging to a certain extent, but they are also increasingly leading to disagreements that can strengthen China’s drive to change / replace current international order to better reflect China’s growing economic and political significance. Although most strategic partners understand multilateralism as well as the EU, there are also countries that agree with China’s (Russia, Brazil) approach, or multilateralism is seen as a way of promoting their specific national interests (India). Countries sharing this approach tend to interpret their national interests strictly and prefer non-binding agreements.

For an overview of the comparison of the general concept of the EU Strategic Partnership with the reality of the EU-China Strategic Partnership, see Table 2.
Table 2: Comparison of the general concept of the EU Strategic Partnership with the implementation of the EU-China Strategic Partnership

<table>
<thead>
<tr>
<th>Criteria</th>
<th>General concept EU</th>
<th>EU-China Strategic Partnership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formation of the Strategic partnership</td>
<td>Formal procedure</td>
<td>Formal procedure applied by the EU (2003).</td>
</tr>
<tr>
<td>Accepted normative concept</td>
<td>Normative convergence</td>
<td>Unconditional engagement – enduring and mutually beneficial relations of equals.</td>
</tr>
<tr>
<td>Areas of cooperation</td>
<td>All-inclusive cooperation: - Trade and economic cooperation; - Political dialog and cooperation; - Strategic cooperation and multilateral global governance.</td>
<td>Country with pursued WTO membership, interest-driven and limited cooperation.</td>
</tr>
<tr>
<td>Multilateralism understanding</td>
<td>Commitment to global governance, based on functioning international institutions, law and shared rules.</td>
<td>Means to achieve multipolarity. Different understanding of contemporary multilateralism. The different nature of the EU CFSP and foreign policy of China.</td>
</tr>
</tbody>
</table>

Source: Own elaboration based above mentioned text

According the above mentioned results as well as from the summary overview in Table 2, China and likewise some other strategic partners do not share the general set of standards and values of the EU Strategic Partnership concept in all criteria. As can be seen in Table 2, it is clear that China meets the EU’s vision fully in one criterion - the emergence of the Strategic Partnership, and partly in another one of the criteria - Areas of cooperation. In the other criteria, both approaches to the Strategic Partnership differ. A similar result would emerge when comparing the general EU concept and the concepts of other strategic partners (especially other countries of the BRICS informal group). The diversity of strategic partners and the diversity of their approaches to the general concept of the EU Strategic Partnership therefore not only casts doubt on some partnerships and the EU’s effectiveness in enforcing its standards and values towards these partners but also the ambiguity, imperfections and insincerities of the real EU Strategic Partnership itself. Limited common elements Partnerships and highly specific characteristics of the EU and China approach and each of the partners demonstrate not only the limited identifiable objectives, common interests and priorities in each of the partnerships, but also open content issues related to the EU strategy towards the partners and the coordination of their relations.

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SUSTAINABLE DEVELOPMENT OF REGIONAL HEAT SUPPLY SYSTEMS IN THE CONTEXT OF THE EURASIAN ECONOMIC UNION ENERGY MARKETS ASSOCIATION

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Abstract. The paper analyses possible directions for sustainable development of heat supply systems of the countries participating in the Eurasian Economic Union when creating a united electricity market. The present problem is subject to the fact that the key technology for the energy products production which forms the basis of the energy systems of the former Soviet Union countries is combined generation of electric and heat energy at the CHP. At the same time, this type of combined production is ineffective in the energy market conditions, and creation of a unified energy market can significantly affect the energy and economic efficiency of regional heat supply systems and energy security of states. In this regard, possible ways of sustainable development of regional heat supply systems in the context of integration of market pricing mechanisms are proposed and risks of various business models of commercial activity in the sphere of heat supply are identified.

Keywords: Eurasian Economic Union, united energy market, regional heat supply systems, sustainable development, heat energy marketing models, commercial risks


JEL Classifications: F15, L22, L97, L98

1. Introduction

In order to develop international economic activity and build resource and production potential necessary to overcome the global economic crisis phenomena and create a driver for the growth of national economies, the countries unite their efforts in the economic sphere and form common economic spaces that essentially represent a common market. This common market ensures movement of the goods, capital, services and labor between the countries participating in the common economic space. At the same time, the economic policy of the participating states is coordinated with respect to the macroeconomic and financial sectors, trade and industry, transport and energy. Economic policy is implemented through a variety of economic tools, one of which is project financing prioritized activities, one of which is e.g. energy efficiency for sustainability (Traversari et al. 2017; Ahmed et al. 2017; Mouraud 2017; Barberis et al. 2017; Passerini et al. 2017; García-Fuentes, de Torre 2017; Oates et al. 2017; Daher et al. 2017; Prause, Atari 2017; Dobrovolskienė et al. 2017).

In 2012, within the framework of the international treaties on the Eurasian integration, a common economic
space was formed between Russia, Kazakhstan and Belarus, known as the Eurasian Economic Union (Block-mans et al., 2012). In 2015, the Eurasian Union also included Armenia and Kyrgyzstan. It is planned that integration of the economies of ex-USSR countries through creation of a common market will lead to the following macroeconomic effects (Blockmans et al., 2012; Lagutina, 2014; Tarr, 2016):

- Decrease in the price of the goods due to reduction in transportation costs for transport of raw materials and equipment necessary for production.
- Increase in competition in the common market of the Eurasian Union by ensuring an equal level of economic development.
- Increase in the average salary by reducing costs and increasing workforce productivity.
- Increase of production capacities due to increased demand for the products.
- Increase in people welfare of the Eurasian Union countries by reducing prices for the goods and increasing employment in the foreign economic sphere.
- Reduction of the payback period of new technologies and goods due to increase in the volume and capacity of the market.
- Growth of the gross domestic product of the Eurasian Economic Union countries no less than by 25%.
- Creation of a common market among the countries participating in the Eurasian Economic Union implies consolidation of national commodity markets in all spheres of social production, including organization of a united electricity market (Khitakhunov et al., 2017; Pastukhova et al., 2016; Vinokurov et al., 2016).

The United Electric Power Market (UEPM) represents a system of relations between the subjects of domestic electricity markets of the countries participating in the common economic space associated with purchase and sale of electricity (power) and related services operating on the basis of general rules.

Consolidation of electric power markets will contribute to (Khitakhunov et al., 2017; Pastukhova et al., 2016; Oseni et al., 2016; Guliyev, 2017):

- Increase in economic efficiency and reliability of electric power complexes operation of the participating countries,
- Update of the electric power wholesale market operation model,
- Increase in the volume of cross-border trade in electricity, both within the common economic space and beyond,
- Stabilization (reduction in) of electricity prices and, as a result, creation of a favorable investment climate,
- Additional growth of the gross product of the countries participating in the common economic space due to the synergetic effect.

Energy systems of the Eurasian Economic Union countries were formed according to a unified concept during the times of the Soviet Union and constituted a unified energy system that, after the collapse of the USSR, was artificially divided. This fact also contributes to creation of a unified energy market, since it can be said about the existence of the necessary technological infrastructure (Pastukhova et al., 2016):

- Presence of high-voltage cross-border transmission networks with the current excess capacity of the export-import section,
- Energy systems of the participating countries operate in parallel mode with the same characteristics and requirements for the quality of energy products.

At the same time, the key technology for production of energy products, which forms the basis of energy systems of ex-USSR countries, is heating system introduction which assumes centralized power supply to consumers on the basis of combined generation of electric and heat energy at the CHP. In Russia, more than 40% of electricity is produced at the CHP, with 36% in Kazakhstan and 56% in Belarus. The role of CHP in the centralized heat supply is even more significant: in Russia, about 46% of heat is produced at the CHP, with 74% in Kazakhstan and 83% in Belarus. At the same time, it should be taken into account that the main
consumer of CHP energy products is the population, which determines the significant social role of heating system introduction.

Despite the advantages of combined generation of electric and heat energy in a single production cycle, expressed in saving fuel for regional consumers by 20-30%, under the conditions of the market model of the electric power industry, in particular, the wholesale energy market, this type of generation faces significant challenges of maintaining competitiveness in comparison with separate production and individual heat supply to consumers (Lisin et al., 2015; Lisin et al., 2016).

This phenomenon is associated with a variety of reasons, the main one of which is low flexibility of CHP, which consists in the absence of the opportunity to reduce generation of electricity while maintaining a constant heat load. This leads to a price failure in the electricity market during night hours (sometimes to zero), when heat production is significant, but the demand for electricity is low enough. Often, CHP can not execute the System Operator’s command and respond to uneven electricity consumption, which prevents them from participating in various competitive electricity trade sectors and speaks of their inability to be used in an energy market environment. Displaced from the energy market, CHP are essentially converted into large boiler houses. All advantages of combined production of energy products and centralized heat supply to consumers are lost (Lisin et al., 2016).

Spread of the market model of electric power industry operation in the Eurasian Economic Union countries and creation of a unified energy market can exacerbate the above-described problem and significantly affect energy and economic efficiency and sustainability of regional heat supply systems development.

In this regard, it becomes relevant to consider possible ways of sustainable development of regional heat supply systems in the context of integration of market pricing mechanisms for energy products in the countries participating in the common economic space and identify risks of various business models of commercial activity in the sphere of heat supply.

2. Analysis of power supply service of the countries participating in the Eurasian Economic Union

Despite the fact that energy systems of the Eurasian Economic Union countries were formed within the framework of the same concept laid down in the GOELRO plan adopted in the RSFSR in 1920, after the collapse of the Soviet Union, the countries developed various strategies for power supply service development. Implementation of these strategies in recent decades has led to the emergence of significant differences in structure and approaches to management of the energy systems of the states.

At present, the energy system of Russia consists of 70 regional power systems which form 7 united energy systems: East, Siberia, the Urals, the Middle Volga, South, Center and North-West. All power systems are connected by inter-system high-voltage transmission lines with a voltage of 220-500 kV and above and operate in a synchronous mode (in parallel).

The united energy systems form a unified energy system of the country, within which about 700 power plants with a capacity of over 5 MW operate. As of the beginning of 2017, the total installed capacity of power plants of the unified energy system of Russia amounted to 236 343.6 MW.

Every year all stations produce about one trillion kWh of electricity. At the same time there is an increase in electricity generation. In 2016, the power plants of the unified energy system produced 2.1% more electricity than in 2015.

The power supply network of the unified energy system of Russia has more than 10,700 transmission lines of voltage class 110-1 1150 kV which cover a territory of 12.2 million km² with 143.3 million people (more than 98% of the population). The rest of the country (about 29%) is provided with energy by means of geographi-
cally isolated power systems.

The unified energy system of Russia produces more electricity than it consumes. The positive balance of electricity makes about 21.6 million kWh per year. This electricity is exported to neighboring countries.

The structure of electricity production in the framework of the unified energy system of Russia is presented in Figure 1.

![Fig. 1. Structure of electricity production in Russia](source: own development based on (Lisin et al., 2015; Chernenko, 2015))

The main consumers of electricity are such energy-intensive industries as oil and gas industry (mining and processing), metallurgical plants, aircraft industry and rocket and space production, transport, road and agricultural machinery industry, light and food industry.

The unified energy system of Russia operates according to the rules of the market model of the electricity and power wholesale market. The state’s natural monopoly extends only to transmission services. The model of the wholesale energy market represents a centralized auction of bids for supply and purchase of electricity in the energy system grids organized according to similar principles as PJM, the American energy market.

The wholesale energy market is divided into trade segments: market of free contracts, day ahead market, balancing market, regulated contracts. More than 72% of electricity is sold on the day ahead market.

The structure of the wholesale energy market in Russia is presented in Figure 2.
Fig. 2. Structure of the wholesale energy market in Russia

Source: own development based on (Lisin et al., 2014; Lisin et al., 2015)

The unified energy system of Kazakhstan covers an area of about 2 million km² (74% of the country’s territory) with a population of 16 million people (89% of the population). The power system of the country is conditionally divided into three zones: North, South and West. The North zone is energy-excessive, covers its own demand for electricity and transfers excesses to the South zone and to export to Russia. The West zone is characterized by both energy-excessive and energy-deficient regions. Existing restrictions on permissible flow in cross-sections of electric networks do not allow to provide energy-deficient regions of the West zone due to its energy-excessive regions.

Similar to the energy system of Russia, the energy system of Kazakhstan is energy-excessive. In 2016, Electricity generation in Kazakhstan amounted to 94076.5 million kWh while its consumption made 92597.1 million kWh (the balance equals to 1.6%).

Power generation in Kazakhstan is carried out by 119 power plants with a total installed capacity of 21,307.2 MW. The structure of electricity production in Kazakhstan within the framework of a unified energy system is presented in Figure 3.
The power supply network of the unified energy system of Kazakhstan consists of overhead transmission lines with dimensions of 0.4-1150 kV. The length of the main trunk transmission lines of 35-1150 kV makes 370.2 km. The trunk power transmission lines of Kazakhstan are connected to external power systems (power system of Russia in the north and the united power system of Central Asia in the south). Transmission and distribution of electricity implies large losses, 21.5%.

In the structure of the country’s electricity consumption, the largest share is taken by the industrial sector (more than 68% of total consumption), agriculture consumes less than 1.5%. The main consumers are such industries as non-ferrous and ferrous industry, chemical industry, machinery-producing industry, oil refining and production of construction materials.

Dynamics of electricity consumption by the industrial sector reflects the annual growth of electricity consumption by 5% which characterizes Kazakhstan economy as energy-intensive and energy-consuming.

The rules for the Kazakhstan unified energy system operation include market pricing mechanisms. At the same time, the system operator of the power system is integrated with the operator of trunk networks (KEGOC JSC). The electricity market is represented by a decentralized model based on bilateral contracts. Trade on the wholesale energy market is carried out only by one commodity, electricity. The balancing market functions in a simulation mode. More than 90% of electricity is sold within the framework of the trade segment of free bilateral contracts.

The structure of the wholesale energy market of Kazakhstan is presented in Figure 4.
The unified energy system of Belarus consists of regional power systems with a single centralized operational dispatch management. General management of the energy complex is carried out by the Ministry of Energy. The Belarusian energy management functions are carried out by the State Production Electric Power Association, Belenergo (Belenergo SPA), subordinate to the Ministry of Energy. The energy sector is completely owned by the state. There are no market mechanisms in the electric power industry.

Belenergo SPA includes six regional republican unitary electric power enterprises, RUE-oblenergo, which are responsible for functioning and development of regional power systems, as well as RUE-ODU, which performs centralized dispatch management of the unified energy system of the country.

Regional RUE are formed on a territorial basis and are vertically integrated companies which include power stations, electric and heat networks. They cover the entire territory of the state (207.6 thousand km²) and provide energy supply to the population (9.5 million people) and industrial enterprises.

The main production capacities of the united energy system of Belarus are represented by 36 heat power plants with an installed capacity of 8.8 thousand MW. The power system is characterized by a high proportion of combined electric and heat energy production (33 out of 36 heat power plants are CHP) (Vatin et al., 2015; Grainger et al., 2015).

The structure of electricity production within the framework of the unified energy system of Belarus is presented in Figure 5.
The power supply network is represented by a backbone network with a voltage of 220-330-750 kV, the transmission lines of which have a length of about 7 thousand km. Cross-border and inter-system transmission lines are quite well developed and allow import and export of electricity over a broad area.

The unified energy system of Belarus is energy-deficient. Despite the fact that it is believed that at present the installed capacity of Belarusian power plants is sufficient to fully meet its electricity demand, the country annually imports electricity from 2.5 to 8 billion kWh of electricity (Russia is the main energy donor). This is partly explained by the structure of the power capacities of the country’s power system, the overwhelming part of which is represented by the CHP. Features of operation of power plants in the combined production of energy products lead, from the standpoint of economic efficiency, to optimize loading of their power equipment in accordance with the heat schedule (the main product is heat energy). Thus, the maximum fuel efficiency of power plants operation is ensured. Peaks and half-peaks of electricity consumption are covered by electricity import.

The achieved structure of energy supply is favorable for ensuring high technical and economic and environmental indicators of energy products production, however it does not provide the necessary level of energy security. In 2016, the generation of electricity by Belenergo SPA power plants amounted to 28.5 billion kWh and electricity consumption made 37.6 billion kWh. The negative balance was 24%.

In the structure of electricity consumption, industry makes 56%, agriculture makes 5%, population makes 23%. The main consumers in the industry are machinery-producing industry, metal processing, chemical and petrochemical industry, agroindustrial complex.

Despite the fact that the draft concept of the law has been developed which provides for division by the types of economic activity (production, transmission, sale of electricity) of the electricity complex, at present there is no liberalization of the country’s electricity market.

The electric power market represents a vertically integrated structure, a unified (republican) energy system unites six regional (local) energy systems corresponding to the administrative and territorial structure of the state. Regional management companies function within each of the regional power systems, they are responsible for power stations and networks forming the power system. They carry out production, transmission, distribution and sale of energy in the region.
Economic relations when buying and selling electricity are as follows. Belenergo SPA buys all imported electricity and all excessive electricity from the regions of the country and sells it to the energy-deficient regions of the country. The structure of economic relations in the electric power industry of Belarus is presented in Figure 6.

![Figure 6: Structure of economic relations in the electric power industry of Belarus](image)

Source: own development based on (Cherp et al., 2013; Grainger et al., 2015)

3. Analysis of heat supply systems of the countries participating in the Eurasian Economic Union

The heat supply systems of the Eurasian Economic Union countries are mainly built according to a centralized scheme, within which a single heat energy source (CHP or a district boiler house) supplies heat to a large number of consumers through a central heat station. About 63% of the housing stock is provided with heat and hot water from district heating systems in Russia, with at least 50% in Belarus and Kazakhstan (Stennikov et al., 2016; Karatayev et al., 2016; Zhang et al., 2015).

Heat supply consists of three main processes: heat transfer to the heat carrier, its transport and use of the heat potential. Accordingly, in each heat supply system, it is possible to isolate a heat source, a heat network and a heat consumption system with heating appliances.

The most common heat supply system in the European Economic Union countries is an independent heat supply system in which the heat network piping systems form several independent circuits separated by an intermediate heat exchanger transferring heat upon contact with the coolant. The coolant is usually represented as delivery water, the temperature regimes of which are set by the temperature chart. The temperature chart varies depending on the region and corresponds from 105 to 150° C for direct delivery water (determined under the average climatic temperature level) and 70° C for the reverse one.
A schematic circuit of an independent heat supply system is shown in Figure 7.

![Schematic circuit of an independent heat supply system](image)

**Fig. 7.** Schematic circuit of an independent heat supply system

*Source: own development based on (Lisin et al., 2016b; Stennikov et al., 2016)*

The heat supply system is designed to provide the population and industrial facilities with heat for the needs of heating and hot water supply. Figure 8 shows the graphs reflecting the dynamics of heat consumption in Russia, Kazakhstan and Belarus.

![Dynamics of heat consumption in the Eurasian Economic Union countries](image)

**Fig. 8.** Dynamics of heat consumption in the Eurasian Economic Union countries

*Source: own development based on (International Energy Outlook, 2016; Karatayev et al., 2016; Zhang et al., 2015)*

As can be seen from the graphs, heat consumption in the Eurasian Economic Union countries is decreasing. At the same time, if we analyze the change in heat capacity of GDP, we can observe a reverse picture (Figure 9). This indicates a crisis phenomenon in the economies of countries, caused by a decline in the volume of output of gross product. At the same time, the reduction in heat consumption due to the modernization of heat supply systems and the reduction of heat losses do not allow to compensate for the negative trend in the heat capacity growth of production.
The countries of the Eurasian Economic Union are characterized by two options for heat supply of residential and industrial facilities (Stennikov et al., 2016):

- centralized heat supply systems from CHP or large boiler houses, when heat for several buildings is supplied from a single source,
- individual, when the heat source is in a heated building or annex.

Heat supply systems have a complex disparate structure defined by different stages of their development.

In the period of planned economy, heat supply systems of residential and industrial facilities were aimed to be implemented through centralized systems based on heating technologies, centralized heat supply to consumers subject to production of electricity and heat in a single technological cycle at the CHP. At the same time, small-scale power generation facilities (mostly small and roof boiler houses) were liquidated, where possible, with transfer of their heat load to centralized sources. Thus, it was possible to achieve energy savings and reduce the working cost of heat energy and, ultimately, the rate for consumers.

Upon transition to a market economy, production, transmission and distribution of energy in most of the countries of the Eurasian Economic Union turned out to be in different ownership, many intermediaries appeared between the generating companies (heat sources) and final consumers, which at the moment has a significant impact on the final cost of consumed heat.

Introduction of market relations in the heat supply led to emergence of various business models for rendering services to provide consumers with heat. In the future, mass distribution of a particular market model of heat supply, which driver will be represented by a common energy market, will lead to a significant change in heat sources structure and consequently to a serious restructuring of the country’s heating network.

As a perspective development of district heat supply, the business model of a single heat supply organization is considered that implements heat energy at fixed rates for end users, collects payments, and has the authority to optimize capacity utilization. At the same time, it enters into unregulated contracts with organizations, sources of heat supply, proceeding from the principle of an alternative boiler house.
An alternative boiler house is understood as a set of typical technical and economic parameters for a model heat source operation. In accordance with this concept, an alternative boiler house is a local source of heat supply which can be used by the consumers of the region to replace third-party heat supply organizations. The boiler house parameters are determined on the basis of the premise of applying the most modern and economic technologies as well as taking the maximum effective use of the installed capacity of the facility in order to exclude excess capacity payment. During the process of modeling, based on a number of input parameters (technological and economic) in accordance with the payback period and rate of return acceptable for the investor, threshold levels of rate for the heat energy produced in the region (necessary gross revenue) are calculated. This value is used to determine the maximum possible rate for district boiler houses. The threshold level of rate for the heat energy generated by the CHP is assumed to be equal to the rate of the boiler house, excluding the cost of heat transportation through the main pipelines. The final rate for the consumer is defined as the rate of the boiler house with the extra charge for transportation through distribution networks.

\[
\text{Tariff}_{\text{CHP}} = \text{Tariff}_{\text{Boiler}} - C_{\text{magnitral, lines}} + C_{\text{distribution, lines}},
\]  

where \(\text{Tariff}_{\text{CHP}}\) is the maximum rate for the heat energy generated by the CHP, \(\text{Tariff}_{\text{Boiler}}\) is the rate of the ideal boiler house, \(C_{\text{magnitral, lines}}\) is the cost of heat energy transportation through the main networks to the heat point, \(C_{\text{distribution, lines}}\) is the cost of heat energy transportation through distribution networks to the consumer.

At the same time, increase in energy efficiency of small and roof boiler houses leads to spread of the individual heat supply business model which in a number of cases is more effective for urban and housing and communal services due to the lack of maintenance costs for heating systems.

Market mechanisms contribute to introduction of energy-saving solutions, in particular, their development will facilitate the transfer of hot water preparation equipment for household needs to buildings, that is, gradual abandonment of central heat points in favor of individual ones.

The choice of this or that business model for regional heat supply systems development in the context of the unified energy market creation will largely depend on the entrepreneurial risks of rendering services to provide consumers with heat energy. In view of the fact that organization of reliable and efficient heat supply to consumers is one of the key tasks of the countries participating in the Eurasian Economic Union, their assessment in regard to each of the business models is relevant not only for enterprises of the entrepreneurial type in the form of heat supply organizations, but also for the subject ministries and regional administrations which need to predict the development and monitor the entrepreneurial activity in this vital sphere of economic relations.

4. Business models for regional heat supply systems development in the context of unification of energy markets and the risks associated with selling of heat energy

Based on the above system analysis of the organization and energy systems operation of the key countries participating in the Eurasian Economic Union, it can be assumed that liberalization of economic relations in the heat supply, which will contribute to creation of a unified energy market, can lead to emergence of the following business models for regional heat supply systems development and provision of heat energy services:

1. The model of the heat supply system development based on sale of heat energy through a wholesale reseller.
2. The model of the heat supply system development based on direct provision of heat supply services using own or leased networks.
3. The model of the heat supply system development based on direct provision of heat supply services to consumers with transit through the networks of a third-party organization.

The first model describes a situation when a heat source (heat power plant) releases heat energy from collectors in a wholesale reseller network. At the same time, the cost of the energy sold is calculated on the basis of the
volumes actually released and the rates established by the regional energy commission or by the alternative boiler house method discussed in the previous section. In this case, the wholesale reseller, most likely, will also be the owner or operating organization of heat networks.

The second model implies the absence of any intermediaries between the heat source and consumers of heat energy. In order to implement this model, the generating company shall have both main and distribution quarter heating networks in ownership, lease or on the basis of operational management (concession agreement).

The latter model is the most difficult from the point of view of the regulatory system and the potential conflicts inherent in it between market participants. At the same time, in our opinion, it is the most likely one in the conditions of liberalization of economic relations in heat supply.

We describe the main entrepreneurial risks, the emergence of which is most likely subject to the choice of the above-listed business models for the heat supply systems development:

1. Risks associated with the use of a business heat energy marketing model through a wholesale reseller:
   - Emergence of a conflict of interests of the generating company with a wholesale energy reseller.
   - Possible deviation of sales volumes from the planned indicators of the generating company due to the high competition of heat energy producers for a single buyer on behalf of a wholesale reseller.
   - Possible decrease in the incomes of generating companies when introducing a pricing method on the basis of an alternative boiler house or establishing a maximum purchase price by a regional energy commission.
   - In the event that the limit value for the necessary gross proceeds is established by the regional energy commission for a wholesale reseller or vacation rates for consumers are approved, the revenue part of the wholesale reseller budget becomes a constant value. Consequently, the reseller has economic incentives to reduce costs due to measures to reduce heat losses in networks. At the same time, the volume of heat energy sales from generating companies can significantly decrease (by more than 20%). If, on the contrary, the rate is formed based on the costs of a wholesale reseller, this will lead to disappearance of incentives to reduce costs and efficient distribution of heat load. As a consequence, the choice of a heat source can be made not from the principle of its effectiveness, but from the affiliation and own business interests of the wholesale reseller.
   - The risk of increase in accounts receivable of generating companies is growing substantially due to increase in the likelihood of cash gaps and non-payments in heat supply systems due to disagreement of rates at the regional and municipal levels, as well as increase in accounts payable to a wholesale reseller towards generating enterprises.

2. Risks when using the business model of direct provision of heat supply services using own or leased networks are the following:
   - Probability of overhead costs for maintenance of operating heat networks.
   - Emergence of financial losses when the actual energy consumption exceeds the planned (calculated norms) energy consumption.
   - Emergence of seasonal cash gaps due to non-conformity of the monthly dynamics of services payment with incurred operating costs for provision of heat supply services.

3. Risks when using the business model of direct provision of heat supply services with transit through the networks of a third-party organization.
   - Emergence of a conflict of interests of the generating company with the heat distribution company in regard to distribution of heat losses (payment for excess losses).
   - Emergence of financial losses when the actual energy consumption exceeds the calculated norms of energy consumption.
   - Emergence of seasonal cash gaps due to non-conformity of the monthly dynamics of provision and payment for heat supply services.
Conclusion

Creation of the Eurasian Economic Union was aimed at formation of a driver for the growth of national economies of the participating countries by uniting efforts in the economic sphere and forming a common market ensuring movement of the goods, capital, services and labor between the countries participating in the common economic space.

Creation of a common market implies consolidation of national commodity markets in all spheres of social production, including organization of a united electricity market. The United Electric Power Market represents a system of relations between the subjects of domestic electricity markets of the countries participating in the common economic space associated with purchase and sale of electricity and related services operating on the basis of general rules.

Creation of a unified electricity market of the countries participating in the Eurasian Economic Union can not but affect the sustainable development and rules for regional heat supply systems operation which is associated with the fact that the the key technology for production of energy products, which forms the basis of energy systems of ex-USSR countries, is heating system introduction which assumes centralized power supply to consumers on the basis of combined generation of electric and heat energy at the CHP.

In Russia, more than 40% of electricity is produced at the CHP, with 36% in Kazakhstan and 56% in Belarus. The role of CHP in the centralized heat supply is even more significant: in Russia, about 46% of heat is produced at the CHP, with 74% in Kazakhstan and 83% in Belarus. At the same time, the main consumer of CHP energy products is the population, which determines the significant social significance of heating system introduction.

The implemented analysis of economic relations in the electric power industry of the Eurasian Economic Union countries showed that despite the fact that the energy systems of the states were formed within the framework of the same concept, after the collapse of the Soviet Union the countries developed various strategies for power supply service development. If Russia and Kazakhstan followed the path of liberalization of the electricity market, Belarus retained its planned power supply service management. Market mechanisms introduced in the energy sector of Russia and Kazakhstan are aimed at increasing the volume of electricity production in order to reduce its unit cost and increase exports to energy-deficient countries. The planned development of Belarusian power supply service presupposes rational use of heating capacities and extraction of maximum economic and environmental benefits from combined production of electric and heat energy. This leads to a conscious energy-deficient development of the unified energy system of the country. Despite the possibility of complete provision of the domestic market with electricity of own production, Belarus largely imports electricity from neighboring countries, which in the future may affect the energy security of the country. Implementation of these energy strategies in recent decades has led to the emergence of significant differences in structure and management of the energy systems of the states.

Creation of a unified energy market will lead to introduction of common market rules for operation of heat supply systems for the countries participating in a common economic space. At the same time, according to our opinion, the following business models for regional heat supply systems development and provision of heat energy sales services are possible:

- The model of the heat supply system development based on sale of heat energy through a wholesale reseller.
- The model of the heat supply system development based on direct provision of heat supply services using own or leased networks.
- The model of the heat supply system development based on direct provision of heat supply services to consumers with transit through the networks of a third-party organization.

The latter model is the most difficult from the point of view of the regulatory system and the potential conflicts inherent in it between market participants. At the same time, it is the most likely one in the conditions of liberalization of economic relations in heat supply and development of the unified energy market in spite of the allocated entrepreneurial risks.
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References


SUSTAINABLE DEVELOPMENT ACTIVITIES AIMED AT COMBATING TAX EVASION IN SLOVAKIA

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Abstract. The aim of the paper is to point out the tax system and activity of tax authorities at carrying out a control activity and as well as the activity of its bodies in order to eliminate tax evasions and tax frauds for a sustainable development of state economy. We pay attention to tax systems and deal with tax frauds. We assume that there is no correlation between the number of registered taxpayers and the total tax collection. We also assume that the majority of findings from the tax controls that were carried out will be on VAT whereas there is no correlation between the findings of VAT controls and the number of tax controls carried out. We refer to the importance to strengthen the battle against tax frauds and tax evasions in Slovakia and the aim is to point out the current tax collection and the overall tax administration in the Slovak Republic with the focus on value added tax (VAT). The final part consists of the proposals for the possibilities to combat against tax frauds and tax evasions more effectively.

Keywords: Tax. Taxpayers. Tax evasion. Tax fraud. Value added tax. Action against tax fraud and tax evasion

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JEL Classifications: G21

1. Introduction

Since their introduction, through the present days to the future, taxes in general are and will always be in the centre of attention not only of citizens but mainly of a state. By a gradual introduction of a value added tax as an excise tax into the practice, the tax burden has been moved on a citizen – a consumer. Taxes are collected mainly because they are the main resources of state functioning. Taxes and their payments were almost always considered to be something like “unavoidable evil” that was raising fears by citizens and still causes citizens to feel worried about their payments on one hand and on the other hand, it creates a room or conditions for not paying taxes at all. In certain cases, some enterprising subjects are enriching themselves illegally on taxes (Dobrovič 2012; Gasparėnienė et al. 2016; Tvaronavičienė et al. 2016; Tamulevičienė et al. 2016; Teivâns-Treinovskis, Amosova 2016; Čirjevskis 2017; Hilkevics, Hilkevics 2017; Sulphey, Alkahtani 2017; Tumalavičius et al. 2017).

The aim of the practical part of the paper is to point out the collection and the overall tax administration in the Slovak Republic with the focus on value added tax because this tax creates most opportunities to avoid tax duties of enterprising subjects and it offers the largest room for tax frauds and related tax evasions. We assume that if a state would create better conditions for business environment, there would be less tax evasions in such an extent. We want to prove that there is no correlation between the registered number of taxpayers and the overall tax collection and that there is no correlation between the findings of VAT and the number of controls carried...
out. The final part consists of proposals of sustainable development for the possibilities of a more effective battle against tax frauds where we emphasize that the tax evasions are not proportional to the number of taxpayers and we also stress that the most tax evasions are on value added.

1. Theoretical part

The tax system of the SR has basic aims of a tax policy of every state that includes effective tax collection and the protection of its economic interests. Tax policy focuses on creating a tax structure and a tax system. A tax structure represents a set of different indirect and direct taxes by the means of which resources to finance public expenses are collected. A tax system includes the provision of institutional tax administration and it is a more general term than a tax structure (Schultzová 2011). According to Široký (2008), a minimum range of a tax system includes a tax structure and legally, organizationally and technically established system of institutions which provide tax administration, their calculation, collection and control. It is also a system of tools, working processes and methods which these bodies use in relation to tax subjects. The main requirements for a sustainable tax system are flexibility, economic effectiveness and justice. By carrying out a tax policy, the most suitable methods are chosen to ensure tax incomes of public budgets. The article 59 of The Constitution of the Slovak Republic (herein after referred to only as SR) determines national and local duties and taxes. These can be assessed based on a law. In the Slovak Republic, the law regulates income tax, local taxes, excise taxes and value added tax.

Value added tax as the biggest tax for tax evasion.

The first modern tax - value added tax (herein after referred to only as VAT) was introduced in France on 10 April 1954 on the initiative of a French economist named Maurice Lauré. Though the initial idea was suggested in Germany already in 1918. But it was the Lauer’s system that shifted the tax burden from tax bodies into the hands of a tax payer for the first time in a modern economy (Arp 2013). VAT is characterized as a tax which defines the added value at an aggregate level and for a certain period whereas it imposes a tax on the difference between the total turnover and total purchases from different business (Brederode 2009). In Slovakia, the VAT is regulated by the Act No 222/2004 Coll. The object of the tax under the section 2 is:

a) to provide goods or services for a countervalue in the territory of the SR which was carried out by a person subject to taxation,

b) to provide goods for a countervalue from other country in the territory of the SR,

c) goods transport from other country to the territory of the SR.

By the provision of goods or services, the tax base is everything that creates its countervalue. This was accepted by a supplier or had to be accepted from the receiver of payment or another person for the supply of goods or services which is reduced by a tax.

The excess of the total amount of deductible tax over the total amount of tax for the relevant tax period means excess tax deduction. If value added tax on output is higher than VAT on input, it represents own tax duty i.e. the necessity to pay tax. In the opposite case, when VAT on output is lower than VAT on input, we talk about excess tax deduction, i.e. the tax office will refund the taxpayer this difference of the tax (www.finance.sk)

A tax fraud is a form of an intentional tax evasion. It is a situation when false statements are provided or forged documents are submitted. Based on a criminal law, it is a crime. In a case when a taxpayer conceals his/her income to tax authorities based on which he/she pays a lower tax than the tax he/she is obliged to pay according to the law, it is a tax evasion (ec.europa.eu).

A tax fraud is an act by which a taxpayer tries to avoid or annul his/her tax duty (Dvořáček, Tyll 2010).

Tax frauds and evasions negatively influence economy and a social life of each country also at an international level. Incomes from a shadow economy support also other forms of illegal activities because they are invested repeatedly. Except the other:

- they change the economic environment of a country in a worse direction
they damage financial interests of EU
- they reduce the income of a state budget and the provision of state functions (safety, defence, education etc.)
- in an international context, they decrease the credibility and responsibility of the Slovak Republic,
- they also negatively influence subjects with good tax discipline based on unpunished tax evaders (Lénár-tová 2013).

Banks play important role in restricting money laundering (Lajčin et al. 2012; Belás et al. 2015a; 2015b; Belás, Demjan 2014; Belás, Sopková 2016; Kazmierczyk, Aptacy 2016; Jurevičienė, Skvarciany 2016)

Tax evasions and frauds reduce the ability of a country to carry out its economic policy and to obtain incomes. Based on assumptions, the tens of billions of euro end up untaxed and unregistered in tax havens.

A tax haven is a term to define a place or a country that offers foreign individuals and companies low or no tax duty in an economically and politically stable environment. It also does not provide financial information for foreign tax reports. Subjects which have seats in a tax haven use a tax system of these countries to avoid tax payment in their home countries (www.investopedia.com).

Tax havens could be geographically divided into the following 4 groups:
1. in Europe (Gibraltar, the island Man, Switzerland, Jersey)
2. in the Pacific (the Cook Islands, Nauru)
3. in the Caribbean (Bahamas, the Caiman Islands, Bermuda, Belize)
4. in Africa, Asia and other in the world (Dubai, Mauritius) (Dvořáček, Tyll 2010).

Definition of legal and illegal tax evasions:
1. Tax avoidance – it is a reduction of tax amount by means that are within the law (through gaps in legislation).
2. Tax evasion – it is a tax dodge, i.e. not paying taxes at all or reducing a tax duty illegally (undeclared incomes, increasing tax costs).
3. Tax flight – it is a change or shift of a seat of a tax subject into a destination with no or low tax burden.

The aim of using the legislative of given countries where the tax subject has its seat is to save taxes, to reduce or not pay taxes at all (Lénartová 2013; Rajnoha et al. 2012; 2014).

The exchange of tax information.
Cooperation and international help by tax administration is connected to the provision, receiving and requesting a mutual information exchange. It is a common cooperation and other help with the aim to ensure the correct tax levying and consequent tax payment. Individual information is provided by competent authorities of one country to other country (Schultzová 2011).

The mutual exchange of international information among the authorities of the member states is as following:

1. The exchange of information on a regular basis
The authorities of the EU member states may agree among each other on a regular information exchange related to individual cases or the groups of cases. The authorities can make bilateral agreement among themselves on mutual and regular exchange of information (e. g. on the amendments to the tax laws).

2. Information exchange based on requests
It is the most commonly used form which takes place upon a request of one of the interested parties. This situation happens when a competent authority of a member state has used all possible ways and means so far to acquire information about a tax subject located within its territory. Therefore, the competent authority asks the other EU member state to provide the other information about the tax subject.

3. The exchange of information on one’s own initiative
A competent authority of an EU member state spontaneously sends the other member state relevant informa-
tion about a taxpayer that it considers to be significant. The information provider sends a report to the highest authority of tax administration in a particular member state (Schultzová 2005).

2. Data and methodology

**Sustainable development of activities aimed at combating tax frauds.**

The aim of the practical part of the paper is to point out the collection and the overall tax administration with the focus on the value added tax. This tax offers most opportunities to avoid the tax duty of enterprising subjects and it provides the biggest room for making tax frauds and related tax evasions.

To reach the defined goal, partial analyses related to the given issue will be carried out in the analytical part:
- the number of registered enterprising subjects (physical entities (PE) and legal entities (LE)) during the period of 2013 - 2015
- the number of tax findings from the tax controls of PE and LE on Income tax, VAT, excise tax and taxes on motor vehicles in the years 2013 – 2015,
- detection of additionally assessed taxes for taxpayers in the years 2013 - 2015

Apart from secondary data obtained from electronic sources, also primary sources provided by the Financial Directorate of the SR were used. A data analysis was processed by the means of tables and graphs. To evaluate them, we used year-on-year differential comparisons (chain index), share comparisons and Chi-square test. Data processing draws attention to the comparisons of the individual figures observed in the time horizon from 2013 to 2015.

**Hypotheses**

To verify or reject the hypotheses, we will work with the data from Financial administration of the SR, the Ministry of Finance of the SR, European Commission, and the data from the Financial Directorate of the SR. Within each individual hypothesis, we will compare numeric values during the defined years and the differences among them. Based on the values, we will try to find out a percentage difference in years or their increase or interannual decrease to every hypothesis and by this we will find out if there are significant changes during individual years. We will also try to find out individual correlations based on a nonparametric correlation coefficient Kendall Tau and a cluster analysis.

**Hypothesis 1:** We assume that there is no correlation between the number of registered taxpayers and the total tax collection

**Hypothesis 2:** We assume that the most of the findings carried out from tax controls will be on VAT

**Hypothesis 3:** We assume that there is no correlation between the findings carried out on VAT and the number of tax controls

2. Results and discussion

**Hypothesis 1:** We assume that there is no correlation between the number of registered taxpayers and total tax collection.

The following tables and graphs show data about the development of the number of registered business companies and the division of physical entities – businessmen according to their legal form in the years 2013 – 2015 which are important to fulfil the defined task.
Table 1 The structure of tax collection

<table>
<thead>
<tr>
<th>The type of tax</th>
<th>year 2013</th>
<th>year 2014</th>
<th>year 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual income tax from dependent activity</td>
<td>1433,70</td>
<td>1641,37</td>
<td>1764,60</td>
</tr>
<tr>
<td>Individual enterprise income tax</td>
<td>49,20</td>
<td>64,95</td>
<td>87,26</td>
</tr>
<tr>
<td><strong>Individual income tax - total</strong></td>
<td><strong>1483,00</strong></td>
<td><strong>1703,32</strong></td>
<td><strong>1851,87</strong></td>
</tr>
<tr>
<td>Corporate tax</td>
<td>1286,10</td>
<td>1645,91</td>
<td>1759,24</td>
</tr>
<tr>
<td>Tax collected by deduction</td>
<td>152,30</td>
<td>143,25</td>
<td>143,25</td>
</tr>
<tr>
<td>Property tax</td>
<td>0,60</td>
<td>0,35</td>
<td>0,35</td>
</tr>
<tr>
<td>VAT – tax collection</td>
<td>7617,10</td>
<td>8440,57</td>
<td>8027,83</td>
</tr>
<tr>
<td>Refunded excess tax deduction</td>
<td>-5373,40</td>
<td>-6241,00</td>
<td>-6416,00</td>
</tr>
<tr>
<td><strong>VAT - total</strong></td>
<td><strong>2243,70</strong></td>
<td><strong>2199,58</strong></td>
<td><strong>1611,82</strong></td>
</tr>
<tr>
<td>Excise taxes</td>
<td>0,10</td>
<td>0,01</td>
<td>0,00</td>
</tr>
<tr>
<td>Tax on motor vehicles and road tax</td>
<td>119,40</td>
<td>129,38</td>
<td>135,01</td>
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<td>Fines from tax control</td>
<td>0,90</td>
<td>0,91</td>
<td>0,54</td>
</tr>
<tr>
<td><strong>Tax collection - total</strong></td>
<td><strong>10659,60</strong></td>
<td><strong>12093,10</strong></td>
<td><strong>11952,00</strong></td>
</tr>
</tbody>
</table>

Source: www.financnasprava.sk – own processing

Table 2 The number of tax subjects in individual years and total collection of individual taxes and additionally assessed tax in the period of the years 2013 - 2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>Income tax</th>
<th>VAT</th>
<th>Excise tax</th>
<th>Tax on motor vehicles</th>
<th>Additionally assessed tax</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2013</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>567</td>
<td>1 872,710</td>
<td>817 027</td>
<td>100 327</td>
<td>119 400</td>
<td>12 931 000</td>
</tr>
<tr>
<td>LE</td>
<td>177 889</td>
<td>2 028 430</td>
<td>2 817 036</td>
<td>188 128</td>
<td>211 459</td>
<td>59 539 000</td>
</tr>
<tr>
<td><strong>2014</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>557 750</td>
<td>1 993 030</td>
<td>619 059</td>
<td>100 338</td>
<td>129 380</td>
<td>12 930 000</td>
</tr>
<tr>
<td>LE</td>
<td>193 105</td>
<td>1 947 500</td>
<td>2 921 699</td>
<td>190 116</td>
<td>217 032</td>
<td>138 539 000</td>
</tr>
<tr>
<td><strong>2015</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>594 984</td>
<td>2 186 320</td>
<td>614 700</td>
<td>101 132</td>
<td>135 010</td>
<td>17 437 000</td>
</tr>
<tr>
<td>LE</td>
<td>212 717</td>
<td>2 640 520</td>
<td>3 008 570</td>
<td>191 356</td>
<td>213 587</td>
<td>122 563 000</td>
</tr>
</tbody>
</table>

Source: www.financnasprava.sk – own processing

Based on the above table 2, we can see that the biggest part of registered physical entities who carry out enterprise activity or some other profitable activity are created by individuals who are self-employed. Since 2013, the number of enterprising physical entities is evenly growing. In 2015, we registered a total growth by 62 142 of business subjects in comparisons to the first observed year.

Table 3 The result of correlation analysis for testing the hypothesis 1

<table>
<thead>
<tr>
<th>Pair of Variables</th>
<th>Kendall Tau Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>the number of registered taxpayers &amp; total tax collection</td>
<td>Kendall</td>
</tr>
<tr>
<td></td>
<td>-0,333333</td>
</tr>
</tbody>
</table>

Source: Own processing
The results of hypothesis 1  
Given the fact that the achieved level of significance of the correlation Kendall tau coefficient ($p = 0.347558$) is less than the chosen significance level $\alpha = 0.05$, it can be stated that the correlation between tax collection and the number of registered taxpayers during the period of three years was not verified.

**Hypothesis 2**

H:2.1 We assume that the majority of findings (additionally assessed tax) from realized tax controls will be on VAT

H:2.2 We also assume that there is no correlation between the findings (additionally assessed tax) from the tax controls carried out on VAT and the number of realized tax controls

Given that this tax is among the riskiest in terms of tax evasions, we also assume that there is no correlation between the findings of controls carried out on VAT and the number of tax controls.

The following tables and graphs present given results of tax controls and their tax activity in the period of years 2013 – 2015.

**The overview of findings from tax controls in thousands of euros according to tax types**

<table>
<thead>
<tr>
<th>Additionally assessed tax</th>
<th>year 2013</th>
<th>year 2014</th>
<th>year 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate tax</td>
<td>59 572</td>
<td>138 539</td>
<td>122 563</td>
</tr>
<tr>
<td>Income tax</td>
<td>12 931</td>
<td>12 930</td>
<td>17 437</td>
</tr>
<tr>
<td>VAT</td>
<td>148 449</td>
<td>344 617</td>
<td>173 015</td>
</tr>
<tr>
<td>Dependent activity</td>
<td>625</td>
<td>1 319</td>
<td>132</td>
</tr>
<tr>
<td>Other</td>
<td>462</td>
<td>147</td>
<td>247</td>
</tr>
<tr>
<td>Total</td>
<td>222 039</td>
<td>497 552</td>
<td>313 394</td>
</tr>
</tbody>
</table>

*Source: www.financnasprava.sk*
Despite the repeated reduced number of the controllers in the year 2013 by 22 employees to 1603, we record the volume of findings from controls carried out in the amount of 556 278 €, and that by 18 400 controls carried out. In a year-on-year comparison, it is a decrease of controls carried out by 7,16%. The findings on value added tax were in the sum of 424 437 € whereas the share of the tax on the findings was 76,3%. The average per one controller represents 347 thousand of € and the finding per one control 30 thousand €. Also in this year, the biggest share on total findings from particular types of taxes belongs to additionally assessed tax. The amount of findings represents the value of 222 039 €, i. e. 52,31%.

In 2014, we recorded the decrease of the number of controllers by 1 567. In comparison to the year 2010, these controllers carried out 22 651 controls. In an interannual comparison, it is an increase by 23,10%. The sum of findings from individual controls was 707 097 €, from that on VAT in the sum of 519 754 €. It means 73,50%. One control represented a finding of 31 thousand € on average. The average per one controller represented 451 thousand €. From the overview of findings from controls carried out, we can see that the additionally assessed tax has the biggest share in the fourth year.

Year 2015 recorded the reduction of the number of controllers to 1400. In comparison to the previous year, it was by 167 controller fewer. The number of controls carried out represented 16 053. From these controls, there were findings of 525 096 tis. €. VAT represented in this sum was 305 212 €, i.e. the share of 58,12%. The average per one control was in the amount of 33 thousand € and the finding per one controller in the sum of 375 tis. €. Out of these taxes, the additionally assessed tax has the biggest share.
Cluster analysis (CLU) belongs to methods which deal with researching the similarities of multidimensional objects, i.e. objects by which more variables are measured. Cluster analysis works with a multidimensional set which is in fact a matrix of type \( n \times p \), where \( n \) is the number of objects and \( p \) is the number of signs, and so rows give observations and columns variables. Clustering is a classification of objects into different groups or clusters in the way so that the objects in a cluster are similar to each other and they are different as much as possible to other objects from different clusters. The most decisive criterion of the credibility of cluster type are mainly copfenetic correlation coefficient \( CC \), both rates of tightness of overlapping \( \delta \). It is true, that the most suitable method is the one, by which the value \( CC \) is the highest and \( \delta \) values are the lowest. We can see from table 6 that the most suitable method is the method of Group Average (Unweighted Pair-Group).

### Table 6 Selection of the most suitable cluster method

<table>
<thead>
<tr>
<th>Method of aggregation</th>
<th>Cophenetic Correlation</th>
<th>Delta (0.5)</th>
<th>Delta (1.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Linkage (Nearest Neighbour)</td>
<td>0.894168</td>
<td>0.418155</td>
<td>0.604184</td>
</tr>
<tr>
<td>Complete Linkage (Furthest Neighbour)</td>
<td>0.93521</td>
<td>0.109399</td>
<td>0.221278</td>
</tr>
<tr>
<td>Simple Average (Weighted Pair-Group)</td>
<td>0.933568</td>
<td>0.223895</td>
<td>0.271637</td>
</tr>
<tr>
<td><strong>Group Average (Unweighted Pair-Group)</strong></td>
<td><strong>0.936728</strong></td>
<td><strong>0.15234</strong></td>
<td><strong>0.206692</strong></td>
</tr>
<tr>
<td>Median (Weighted Pair-Group Centroid)</td>
<td>0.866354</td>
<td>0.555046</td>
<td>0.658925</td>
</tr>
<tr>
<td>Centroid (Unweighted Pair-Group Centroid)</td>
<td>0.871758</td>
<td>0.326103</td>
<td>0.395006</td>
</tr>
<tr>
<td>Ward's Minimum Variance</td>
<td>0.682807</td>
<td>0.508187</td>
<td>0.597529</td>
</tr>
<tr>
<td>Flexible Strategy</td>
<td>0.828155</td>
<td>0.403755</td>
<td>0.471101</td>
</tr>
</tbody>
</table>

**Source:** Own processing

From the following figure (figure 3), it follows that in the observed years 2013 – 2015, it is possible to divide additionally assessed tax into two separate groups. The first group consists of Income tax, Corporate tax, Tax on dependent activity am other taxes and VAT represents another group.

Based on this fact, we can say that the hypothesis H 2.1 was verified to a full extent.
The next table (table 7) shows the result of correlation analysis between the VAT findings and the total number of controls carried out. Because the reached level of significance of the correlation coefficient is higher than the chosen level of significance $\alpha = 0.05$, we can state that the correlation between the observed variables does not exist.

**Table 7 Result of correlation analysis for testing the hypothesis H 2.2**

<table>
<thead>
<tr>
<th>Pair of Variables</th>
<th>Kendall Tau Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kendall</td>
</tr>
<tr>
<td>The findings of controls on VAT (in thousands of €) &amp; The number of controls carried out</td>
<td>1,000</td>
</tr>
</tbody>
</table>

*Source: Own processing*

The result of the hypothesis 2: It is obvious from table 5 that the number of controls carried out in 2013 was 18 400, it grew to 22 651 in 2014 and in 2015, there was a decrease to 16 053 controls. At a first sight, it raises an impression that there was a rapid decrease of the number of tax controls, but on the other hand, we can see from this table that the finding from the controls carried out, particularly on VAT in 2013 it was 424 437 000 EUR, in 2014 a big growth to 519 754 000 EUR and in 2015 a drop to 305 2012 000 EUR. The most decisive thing is thus not the high number of controls but their strict performance as well as their final effect. The VAT share of the findings of control activities in 2013 represented 63,77 % and in 2015 it was 58,12 %. It follows from the other tables that the biggest attention by control performance is paid mainly to value added tax which is evaluated as the riskiest tax in the tax system of the Slovak Republic.

The hypothesis that the most findings carried out from tax controls will be on VAT was verified (figure 3). It was also verified that there is no correlation between the VAT findings and the number of controls carried out (table 7).

**Conclusion**

In the analytical part, we pointed out certain aspects in a tax system of the SR in a limited period that have an influence on the collection and total tax administration with the focus on a value added tax which is considered to be the most vulnerable tax within the total tax system of the SR and which also offers “fertile soil” for different interest groups of persons in order to gain easily accessible source of financial means.

Since 2013, there were more and more registered companies every year. Here, we can assume that together with the increase of the private limited companies, mainly in 2015, it can be the “last” effort of business entities to “easily” gain a certain amount of financial resources from excess deduction. A significant role here can be played by the fact, that the government of the Slovak Republic has informed in advance that it will take measures to eliminate tax frauds in the following period. At the same time, it is also related to the fact that the private limited companies have almost no responsibility for not paying the taxes or tax reduction because they do not dispose of any capital in the majority of cases. The development of tax controls during the observed years shows that the findings from the controls carried out are increasing constantly. We assume that the controls carried out in the first monitored years were more formal than they are at present. The performance of tax administration and the final effect of the controls are more important than their number. Contrary to that, the majority of findings from the tax controls will be on VAT and thus our assumption was verified. The assumption that there is no correlation between the findings on VAT and the number of controls carried out was also verified. We found out that law violation and additionally assessed tax from the tax controls of taxpayers was increasing and then decreasing which may be caused by the gradual implementation of regulations of the Ministry of Finance to eliminate tax frauds.

One possibility to decrease the number of tax evasions resulting from the analytical part can be to increase the number of qualified tax controls carried out. For this purpose, it is important to increase also the number of
qualified controllers. At present, the tax offices do not have enough controllers who would be important in relation to the increased number of tax evasions. For this purpose, we assume that the number of controllers should be five times higher and this minimally for the period of five years so that there can be at least 90% of business entities controlled in the shortest possible time horizon.

To increase the effectiveness of the battle against tax evasions and frauds, we suggest the following proposals:

a) The duty to keep accounting books for all business entities regardless of whether they apply flat rate/ fixed expenses or truly provable expenses and to either introduce mandatory monthly (or quarterly) presentation of financial statements to the tax office or to create a statement by a tax office which would record cash expenses, non-cash expenses, the state in a cash desk and in a bank account.

b) Obligatory establishment of one business account would contribute to make the payments of all invoices (received and issued) be carried out only in a non-cash payment form. At the same time, all these invoices would have to correspond to issued and received invoices in bookkeeping.

The above mentioned proposals could contribute to the abolishment of the VAT control statement and at the same time a tax office would have continuous information about the business activity of a particular taxpayer.

c) The establishment of the registrar of fines of individual taxpayers. For this reason, it is not possible to find out if in a previous period, a taxpayer got one, ten or fifty fines as well as the amount of these levied fines.

d) To introduce one-time tax (licences) or it does not need to be a tax but a one-time payment for business activity in a usual calendar year. The due date would be at a beginning of each calendar year (payment until 31st December of a previous calendar year) so that the entering enterprise could carry out its business activity already from the first day of a following calendar year.

e) Cancellation of VAT and introduction of turnover tax, according to my opinion, this step would lead to the increase in the incomes of a state as it is in developed countries of the world.

Acknowledgment

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International Entrepreneurial Perspectives and Innovative Outcomes

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Former Minister for Labor,

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The text of the article should be printed with single intervals on 210x297 mm format pages with the print area of 150×255 mm each. The length of the article should not be less then 8 pages and cannot exceed 25 pages.

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The name and surname of the authors should be printed in small letters of 11 pt bold type and should be centred. Below the author’s surname, the name of the institution (represented by the author or co-authors) must be printed in 10 pt italic; its address and the author’s e-mail written and centred.

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Introduction, main text and conclusions should be printed in 11 pt type single interval in one column at the distance of 1 line from keywords.

Figures or tables should be mentioned in the text and the place should be indicated in the separate line. The numbers of figures and tables and inscriptions below are written in 9 pt regular typeface. Figures and tables are separated from the text by one-line space.

The titles of chapters and sub-chapters are printed in small letters, 11 pt bold-regular type and aligned left. The introduction, titles of chapters and conclusions are numbered. The titles of chapters and sub-chapters should be separated from the text by one-line space.

The name of the author of the source, the year of publication and pages should be presented in the text in brackets. The list of references is given after the conclusions. The word References is spelled in small letters, 11 pt bold-regular type, left ranged and the list of references in 9 pt. The references are to be presented in the alphabetical order, in the original language; translation into English is given in square brackets. References according to the Harvard citation style, e.g. http://libguides.library.uwa.edu.au/harvard.
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