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PART VI

SELECTED PROBLEMS OF COST ALLOCATION IN HOSPITAL – RELATIONSHIP BETWEEN BUSINESS MODEL AND COST STRUCTURE

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Abstract. Hospital management faces lots problems connected with uncertainty of health care demand, high and constantly growing costs of health technology, and limited availability of resources. Functioning under non-market conditions, instability of law and restrictions for conducting medical activity, as well as limitations in ensuring long-term revenue stability (mainly from public resources) constitute other management problems. Another problem and an opportunity at the same time is relative freedom of patients' movement between regions and countries which, at least partially, seems to be a consequence of globalization. Globalization also results in adoption of foreign patterns of hospital organization, as well as patterns of providing services. The growing competition in health services market causes the creation of different business models in healthcare, capable of covering high fixed cost, while ensuring financial goals' achievement. This, in turn, directly results in diversity of the hospitals' operation cost structure. As a result, the comparability of financial reports is limited, and detailed cost data analysis is restricted by a number of additional factors, such as detailed cost drivers for settlement of overhead cost.The aim of the paper is to present the selected business models of hospitals, concerning their organizational aspect, and their reflection in the structure of operation costs. The hypothesis states that the diversity of hospital business model design results in costs incomparability. The paper uses the methods of meta-analysis of the literature, observation, case-study and cause and effect relationship analysis, as well as the method of synthesis in order to formulate final conclusions.

Keywords: costing, cost, hospital, accounting, business model, accounting

JEL Classification: D24, I19, M21, M41

1. Introduction

The provision of health services is carried out in the health market. There are different views as to the diversity of this market compared to other markets, although there prevail those confirming its distinctiveness and special character. The attributes of health market distinctiveness are mainly (Isham et al., 2013; Castano, 2014; Kaplan & Porter, 2011; Novakova, 2015):

- Demographic and epidemiological phenomena (uncertainty of the occurrence of health needs and their differentiation, aging population).
- Free choice of a service provider, including cross-border exchanges, as a result of globalization processes.

- Satisfying high needs in the hierarchy of human needs – the protection of life and health.
- Considerable dependence of community health from nonclinical health factors (health behaviors, social and economic factors, physical environment).
- Uncertainty in achieving predictable outcomes. The dependence of the beneficiary on the service provider and the performance of services often in a particularly difficult personal situation.
- Limited access to certain resources (financial, material, human), instability of long-term funding (public).
- High level of technological development resulting in frequent change/development of technology and its high costs as well as high share of fixed costs (maintenance of potential to provide health services).
- Requirements to maintain adequate infrastructure and to meet a number of additional organizational and functional requirements.
- Phenomena: moral hazard, negative selection, asymmetry of information, supply induced demand.

In Poland, hospitals and other medical entities are run autonomously and independently, either publicly or privately (including non-profit entities). At the same time, the consequent changes in their funding model (mainly public funding) and other factors (mentioned above) affecting the health market force such development of a business model which assures optimizing the utilization of existing resources and covering all operating costs. It should results in maximizing the scope and quality of provided services and/or achieving the desired rate of return on invested capital (in profit-oriented entities). The following are observable:

- Transforming public entities into non-public ones (also with the public ownership), as well as merging public entities.
- Cooperation of public and commercial entities, in order to increase the potential and stronger position in the process of obtaining public sources for health care providing.
- Implementing integrative medicine (IM), and complementary and alternative medicine (CAM) in a hospital setting (Coulter et al., 2008).
- Specialization of health entities, e.g. in the field of one-day treatments.
- Attracting institutional investors (e.g. investment funds) into health units.
- Creating organizational and functional hybrids of commercial entities involved in the provision of health services (dedicated to: providing health services, providing infrastructural facilities, servicing certain auxiliary and other activities, e.g. handling marketing and promotional processes).
- Using outsourcing services and auxiliary activities.

The presented specific conditions for conducting medical activity, further strengthened by the organizational and funding model of health care in the country concerned, and growing competition in the health services market cause (also in the international scope), the creation of different business models in healthcare, capable to cover high fixed cost, while ensuring financial goals' achievement. The organizational and functional structure of health units and

the existing links between them are undergoing reconstruction. It forces appropriate changes in the business model of conducted economic activity, among which the three main drivers are: standardization, separability and patient centeredness (Castano, 2014). This, in turn, directly results in diversify of the hospitals' operation cost structure. As a result, the comparability of financial reports is limited, and detailed cost data analysis is restricted by a number of additional factors, such as detailed cost drivers for settlement of overhead cost.

The aim of the paper is to present the selected business models in hospitals, concerning their organizational aspect, and their reflection in the structure of operation costs. The hypothesis states that diversity in hospital business model design results in costs incomparability.

2. Theoretical background

The concept of a business model is an object of growing interest and implementation, as well as an element of competitive advantage (Kardas, 2016). The business model is considered in terms of implementing innovation, strategic management, creating competitive advantage. It finds a link between the strategy of an enterprise, its results, and plans.

The business model describes the way the organization delivers products to their customers and creates value for them. It presents the process of searching for values and their maintenance. The approach to this concept is heterogeneous and varied at the definitional level (Ostenwalder et al., 2005; Zott & Amit, 2008; Johnson et al., 2008). Some authors define the business model in the light of its concept, others by its design, and others by the criteria of its identification (Duczkowska-Piasecka, 2012). Business classifications are also differentiated (Lambert, 2015). International Integrated Reporting Council (IIRC) has issued a definition of business model – the organization's chosen system of inputs, business activities, outputs and outcomes that aims to create value over the short, medium and long term (IIRC, 2013). Timmers (Timmers, 1998) points out to the fact that a business model provides an architecture for the product, service and information flows, including a description of the various business actors and their roles, and a description of the potential benefits for that various actors and a description of the sources of revenues. Internal structures of business models vary significantly, and are also characterized by high dynamics of their changes.

Redefining the business service delivery model in healthcare is essential. Porter and Teisberg (Porter & Teisberg, 2006) point out that the structure of health services in these entities is one of the most important issues. It is important not only what we provide, but how. The problem in the health sector is not only increasing health expenditure (also per capita) but also taking into care the widest possible population, associated with it an improvement in the health and increase in the quality of service (Berwick et al., 2008). The relationship between the business model and accounting is a rather rare subject of research, although interest in this topic is undoubtedly growing. This mainly concerns reporting and disclosure of information on the business model (Michalak, 2016; Lassini et al., 2015).

The classical and dominant models of medical activity are the business model of general hospitals and physicians practices (Castano 2014; Hwang & Christensen, 2008). These models are transformed mainly by reducing uncertainty in the healthcare market and increasing the predictability of treatment outcomes, as well as the development of standardization and the use of task shifting (Christensen et al., 2009; Fieldston et al., 2013). Another determinant of business model transformation is application of disruptive innovation

which can be seen as providing services (products) not as good as already existing but good enough for many clients and more economically and also improving over time (it can be seen as the way of reduction of growing health care spending) (Christensen et al., 2009). This is a manifestation of striving not so much for certain financial effects, but for medical coverage of the wider groups of society and gaining positive benefits for the community (Angeli & Jaiswal, 2016). The specialization of entities is also taking place, moving away from the model of a complex organization (solution-shop), aiming to focus on the essence and the narrow range of services (focused factory). Although these transformations are not always fully possible and depend on both the level and extent of health care as well as the organization itself. That may result in the use of a hybrid model combining both of the mentioned (Cook et al., 2014). Legal requirements may also limit specialization (e.g. the need to ensure the complexity of care, the range of specialists and equipment).

The above aspects of shaping business models in the medical activity initially appeared in highly developed countries. In the meantime, through the implementation of globalization processes, they also appear in other countries, e.g. in Poland. The position of these business models is getting stronger and enforces further changes in the Polish healthcare institutions.

Studying the healthcare costs is very important, mainly because of the problem of their growth combined with limited resources, limited access to healthcare and the presence of selected demographic phenomena. The cost of implementing health services should be the basis for the effective allocation of public funds, by reporting them from the micro level, i.e. the individual hospitals. Such initiatives also appear in Poland (Szewieczek, 2016). Whereas, the problem of calculating the costs of medical treatment is universal and does not concern Poland alone. As Kaplan and Porter (Kaplan & Porter, 2011) point out, there are already different perceptions of cost categories by healthcare market participants (the expenditure perspective – the payer or the perspective of the entity providing medical treatment), as well as different cost allocation methods and, consequently, problems determining how much it actually costs to deliver medical treatment.

Reliable medical treatment costs can be determined solely on the basis of data generated by the providers of these services. This data is the basis for the distribution of public funds (Szewieczek, 2016), the conclusion of commercial contracts, the setting of price lists for individuals. They are also the basis for benchmarking the entities, assessing the management, setting the strategy for action. Their relative comparability is therefore indicated, all the more so as there are also commonly-held views about their amount[1]. Whereas, different business models in health care result in barriers to the interpretation of cost data and their further analysis. The "traditional" cost structure is obliterated. In this case, it is necessary to supplement the presented financial information with a descriptive element indicating the adopted organizational and functional solutions. This increases the intelligibility, reliability and comparability of the data presented. It also allows for the justification of the necessary cost corrections with additional indicators. As a result, the quality of reporting information that underpins the decision-making process is increasing.

3. Methods

The analysis of the literature in the field of business model theories and aspects of the health care market functioning as well as organizational and functional conditions of health

[1] It is believed that personnel costs should be at least 50% of the total costs (Kaplan & Porter, 2011).

service providers and presentation of their costs, conducted in the form of meta-analysis, was the starting point for the observation and assessment of the situation in the Polish market of health services. The studies on the variability of cost data presentation were conducted in a commercial hospital with a smaller scale of activities, although providing a variety of inpatient and outpatient services. The hospital has 54 beds on 4 wards, as well as facilities of operating theaters and diagnostic imaging laboratories. The number of completed man-days amounted to 8,275 in 2016. The rate of bed occupancy was not high, due to the lack of a contract with the National Health Fund for selected areas of provided services. The study was conducted by the method of observation and case-study, and there was also carried out the cause and effect relationship analysis. The tested hypothesis states that diversity in hospital business model design results in costs incomparability.

4. Results

The business model of the entity under study is focused on the hybrid form. The specific (medical) activity is conducted by the examined entity, while the entire infrastructure support is provided by another entity. In addition, part of the medical staff is managed by another specialized entity, which is the result of specific labor law regulations and cost cutting. Each of the three entities was organized as part of a larger whole for the realization of the main business objective, i.e. the provision of medical services.

In the hospital under investigation, the cost accounting is carried out as a full cost accounting in two systems at the same time (cost by type, and cost by place). The financial statements show the costs in a generic manner, detailing the cost of basic resources (depreciation, external services, materials and energy consumption, payroll and employee benefits, taxes and charges, other costs by type). Within the functional cost system, the cost center of a core (medical) activity and the centers of an ancillary activity (Szewieczek, 2013) were distinguished. The costs incurred by the analyzed entity in 2016 are entered in the table (Table 1). The detailed elements of selected costs are additionally presented in table 2 (Table 2).

Table 1: Operational cost in hospital in 2016 (in PLN)

Cost by type	Amount	Structure	Cost by place	Amount	Structure
Amortization/Depreciation	648 689	2.9 %	Cost of hospital wards	17 274 989	76.3 %
Materials and energy consumption	5 527 713	24.4 %	Cost of medical clinics	1 387 364	6,1 %
External services	10 973 532	48.5 %	Cost of other medical and diagnostic centres	674 175	3.0 %
Payroll and employee benefits	4 797 503	21.2 %	Cost of ancillary activity	424 432	1,9 %
Taxes and charges	623 575	2.8 %	Overhead cost (general and administrative cost)	2 876 426	12,7 %
Other costs by type	66 375	0.2 %			
Total amount of operational cost (by type)	22 637 386	100 %	Total amount of operational cost (by place)	22 637 386	100 %

Table 2: Element of overhead cost and external services in hospital in 2016 (in PLN)

Costs of external services			Overhead costs		
Cost item	Amount	Structure	Cost item	Amount	Structure
Medical services (i.e. medical contracts)	6 423 899	58.6 %	Amortization/Depreciation	111 122	3.9 %
Diagnostic and other (medical) services	367 060	3.3 %	Rent (partially)	1 017 961	35.4 %
Lease payments for rental of premises	3 798 797	34.6 %	Board and secretariat	872 696	30.3 %
Other lease	144 021	1.3 %	Taxes and charges	555 973	19.3 %
Other cost of external services	240 755	2.2 %	Fuel	103 295	3.6 %
			Other costs	215 378	7.5 %
Total amount of external services cost	10 973 532	100 %	Total amount of overhead cost	2 876 426	100 %

5. Discussion

Selected by the studied entity model of business organization results directly in a specific cost structure. This is evident in the dominant cost items of outsourced services (in place of the traditionally predominant in hospitals cost of payroll and employee benefits), as well as the high share of overhead costs (nearly 13% of total cost). Only an in-depth analysis of the cost structure of external services reveals that this item mainly covers the costs of medical staff employed in the form of business relationships rather than employee relationships, as well as rental costs. An additional reading of the contents of the rent contracts allows for concluding that insurance services, maintenance and medical equipment costs are included in the rental costs along with the space itself. On the one hand, this type of business model increases the cost of outsourced services through subsidizing such items as: amortization/depreciation, materials and energy consumption, payroll and employee benefits and other costs by type. Similarly, the situation is expressed in the cost structure by place (although partially offset by the unit's allocation of rent to all cost centers using the allocation key). However, this does not apply to VAT on this activity, which is entirely settled for administrative expenses.

The cost structure, distorted by the choice of business model, results in underestimation of the actual cost of providing health services. The costs of basic activities are partially undervalued for their recognition as overhead costs. Another issue is the valuation of health services in progress and the total amount of overhead cost on the financial result of the current period. The cost structure presented by the hospital is distorted from the typical one presented in other typical hospitals (especially those in which the hybrid business organization model does not apply).

6. Conclusion

Detailed analysis of the cost structure of the selected hospital was possible only through in-depth analysis. Studying only publicly available reporting data was not sufficient and the conclusions drawn on this data may have been misleading. The investigated entity does not make any significant errors in the cost accounting, but the presented direct and indirect costs of providing health services are underestimated by recognizing some of the elements involved in overhead cost. This results in the valuation of health services (including for the purposes of the public payer in which the investigated entity participated), which may be inadequate to the

reality. This, in turn, can result in inefficient allocation of limited resources, wrong decision-making, or inadequate judicial evaluation of the tasks and functions entrusted. It is therefore possible to positively verify the hypothesis, which states that diversity in hospital business model results in costs incomparability.

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AFRICA'S DILLEMA DURING THE GLOBALISATION CRISIS

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Abstract. This paper deals with the impact of globalisation crisis on economic and social development of African countries. The globalisation processes taking place in the last few years have had an impact on uncontrolled advancement of many negative phenomena occurring in the economy, as well as in daily existence of residents of many African countries. Africa is extremely diversified both politically and, what is the most negative, ethnically (paradoxically not on the grounds of religion). The continent is currently going through after-effects of international dependency on great economies, which has not been experienced since Africa freed itself from the colonial domination in mid 20th century. It mostly happens due to countries internal policy and external influence caused by the urge to control exploitable resources. Moreover, spiritual factors and the influence of variety of religions on social and mental awareness of Africans, are a threat to the sustainable, abuse-free growth. Appearance of economic activities and attempts of bursting into cultural areas of Africa's inhabitants may be either negative or lead to innovative changes aligned with the western meaning of that term. An attempt of answering a matter of those significant threats is based on an objective assessment of the importance of those processes on African countries and their ability of finding themselves in the new reality of the ethnically, culturally and economically conflicted world. In that case it is beneficial to use statistical data referring to the changes in some indicators specific for African countries that occur over time. It is also essential to take into consideration the wealth of the country, its industrial structure, the development of agricultural production, urbanisation, education along with road and rail infrastructure.

Keywords: globalisation, African crisis, colonialism

JEL Classification: F51, F54, N57, O55, Q34

1. Introduction

The impact of the process of globalisaton on cultural, social and industrial changes taking place in Africa is much more complex than it is suggested by results achieved in particular African countries and what is indicated by the most significant indicator of growth, which is the GDP of those countries. It is caused by an uneven division of wealth and the extreme poverty observed in African societies. It indicates that the impact of globalisation is hard to identify. It is also not clear whether such changes in African countries are the effect of technological revolution in the highly civilised world or if they are caused by the overlap of cultural models with the most elite part of African society, very often well educated on prestigious Western universities and able to absorb highly processed knowledge. Globalisation, in the modern sense of the term, should enable, appropriate for the environment

of the receiving country, flow of technology, which will improve efficiency of the economy, knowledge and technology transfer which can be absorbed by the staff and flowback of young human capital enriched with knowledge gained in countries handing over new technologies. In certain ratios globalisation processes also support the flow of potential labour capital from various countries, which usually is a one-way stream flowing to well-developed civilisations. In order to stop the intensity of such process there are some necessary, often very strict, steps to be taken, which are supposed to convince the citizens to come back to the home country and undertake an innovative form of employment.

The main aim of this article is to indicate, in an objective manner based on statistics of economic growth, that innovative changes in a Western meaning of the word are related to significant threats. Nevertherless, as per objective image of those changes, they are of significant importance in the ability of African countries to find themselves in the new reality of the ethnically, culturally and economically conflicted world. The way in which African countries handle opportunities offered by the globalisation depends, to a large extend, on their economic condition left behind in the foregone decades by the colonial countries. As it is suggested by the modern expansion connected to the globalisation processes, growth of both economy and financial infrastructure - banks, organisations, associations, education, healthcare etc., of African countries is strongly influenced by the foreign investments. They are directly related to the intellectual potential of a given country with certain economic values enabling gain of expected profits by investors.

The article contains synthetic approach of dilemmas and threats appearing in some African countries, which allows to justify abovementioned thesis about the impact of globalisation on infrastructural changes in those countries. The main focus is on the post-colonial achievements, economic growth and social condition of African countries with special emphasis on problems passing onto Africa from more advanced countries. The form of the analysis is based on conclusions arising from the evaluation of data about economy of a particular country, its demographic potential and social aspects of internal connections, including ethnic connections.

2. Social and ethnic determinants and economic potential of chosen African countries against globalization processes

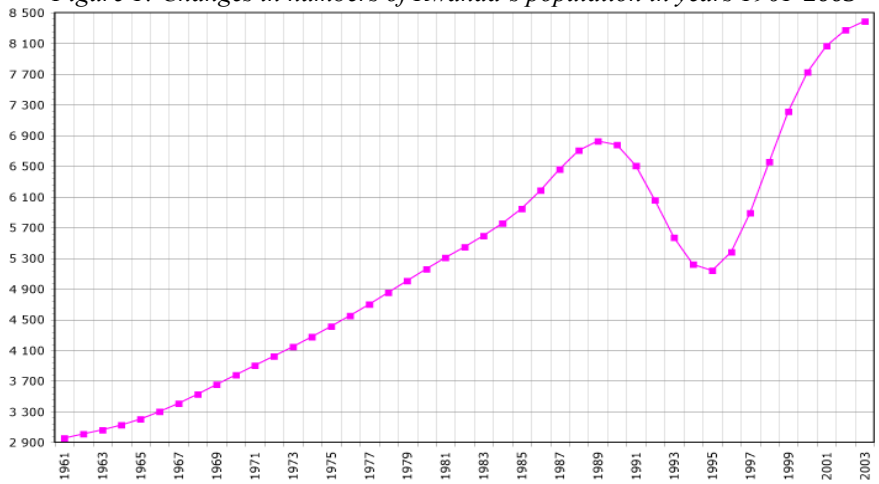
2.1. Ethnic differences in a historical context

It needs to be highlighted that problems of African countries derive directly from habits leftover from the colonial period, which has encompassed Africa for many centuries up to the mid-20th century. The last few decades are the period of infiltration of ideas of western civilizations to the most intellectually prepared leadership elites of African countries. Facing a number of problems, mostly of economic nature, generates social problems which are not aligned with the direction preferred by the political leaders and therefore lead to revolts and military conflicts both internally and internationally. The background of such conflicts is very often of ethnic origin and is a consequence of silencing the conflicts for many decades. The case of power and significance in the tribe structure resulted in such events as the destruction of the population, for example in Rwanda between Hutu and Tutsi tribes. The source of the conflict was the difference in fulfilling the basic needs of both tribes. Bazan describes Tutsi tribes as a very intelligent, cunning, cautious, brainy society that dealt with cattle rearing, in comparison Hutu tribe which mostly dealt with farming (Babicki, 2013). It led to obvious

conflicts and due to the fact that Hutus outnumbered the Tutsi (85% of the population) it resulted in eradication of much less numbered Tutsi in 1994 (Baisley, 2014) (Deutsch & Yanay, 2016). Even though Hutu were the majority of Rwanda's population they were constantly pushed away from the authority. Similarly to other cases, the armed uprising in Rwanda was deliberately supported with providing arms. The sources suggest (Wood & Pelemann, 2016) that British company Mil-Tec Corporation Ltd has been sending arms to Hutu from at least June 1993 up to mid-July of 1994. Mil-Tec has issued invoices for 6,5 million USD and has received 4,8 billion for the provided arms. The board of Mil-Tec has left UK shortly after publishing this information.

Changes in numbers of Rwanda's population, which are the consequence of abovementioned events are depicted on the Figure 1.

Figure 1: Changes in numbers of Rwanda's population in years 1961-2003



Source: Own study based on: Statistical Yearbook 2011

As it can be concluded from the Figure 1, the changes in numbers of citizens of Rwanda have dropped from the peak of 6 million 900 thousand before the armed uprising to 4 million 700 thousand after the extermination, with a relatively small area of the country equal to 26 338 km^2.

According to The Pew Research Center. [access as per 2017-08-10] the religious structure of Rwanda is dominated by (93,4% of population) Catholicism, Islam - 1,8% and tribal religions make 0,2% of the population.

Differences and conflicts being repercussions of post-colonialism have appeared also in Congo (in 1960s), previously known as Belgian Congo, and ended after many years of fighting devastating the population. At the beginning of 1960s (Trenholm et al., 2016; Shirkey, 2012; Thornton, 2016). Congo used to be a great economic force, preceded only by the Republic of South Africa. Negative changes have occurred when the country was acquired by Mobutu Sese Seco. Year by year the country was becoming more and more poor. In the last years (2008) announcing results of elections caused an uprising in the southern part of the Democratic Republic of Congo. It was provoked by Congolese general Laurent Nkunda - as he could not accept the victory of Joseph Kabila. Rebellion has caused a mass exodus of residents of the eastern parts of the country. People were running away to temporary camps in the eastern part of Congo or to the neighbouring Uganda.

Currently the Democratic Republic of Congo belongs to the group of the poorest countries of the world. It suffers from continual wars and internal conflicts and at the same time is one

of the countries richest in natural resources. Apart from great resources of cobalt, copper and diamonds the country has 70% of world's coltan resources and is the main source of tantal, which is integral in the electronic industry.

Nowadays, there are numerous conflicts happening in African countries. In the Republic of Kenya in 2007, after announcing the results of the elections, simmilarly as in Kongo, a rebellion outbursted. Fights between the opponents looked just as the ones from Middle Ages because the fighting was conducted with the use of bows. It depicts determination of certain social groups, visible even in a supposedly politically stable African republic like Kenya. Another African country suffering from military conflict is The Republic of Mali, previously a French colony, where the conflict bursted out in 2012. Tuaregs (native nomads from the northern Mali) announced secession of a new country - Azawad (Polgreen & Cowell, 2012). The conflict has become even more complicated due to the coup taking place in March. There was also an outburst of fighting between Tuaregs and islamists that make around 90% of Mali's population. The fights were joined by French military forces which, together with the Mali army, returned most of country's nothern territory. Such types of conflicts have a very long history, despite that fact that Mali used to be perceived as the most politically stable African country.

Abovementioned examples of complex ethnic and ethnically-religious dependency are strongly related to conflicts and issues occurring in the economic and social processes of other parts of the world. All African rebellions and wars are supported by someone. It is a continent where affairs of the biggest world powers and concerns are constantly clashing. Africa is an enormous, rich in resources mine exploited by the world powers and global corporations working on their command. Mainstream globalisation, crossing over of economic trends and needs of increasing the flow of production by worlds superpowers leads to intensification of conflicts in and between African countries.

2.2. Economic changes in chosen African countries against globalisation

Globalisation is a process enabling realisation of common, creative development to the societies and free of wars existence within nationalities or national communities. Any variations of nationalism caused by ethnic reasons or anthropological diversity cannot be the reason for mutual conflict or exploitation of social groups. There are obviously many different definitions of globalisation stated in the literature. It is essential that due to globalisation, the inernational interdependency and integration between countries, societies, economies and cultures will be increasing. There is no room for nationalism and ethnic conflicts, on the contrary there is a place for disappearance of structures strengthening divisions. With the increasing speed of interdependency between different societies of the world, anything is possible. It is enabled mostly because of rapid development of information technology. Not all of the dependencies and relations occurring in the process of globalisation are fully identified (Giddens, 2004).

Newly occurred forms of globalisation give rise to new risks. It is particularly visible in the economy. Opportunity of globalisation causes results such as a sudden outflow of short-term foreign capital. In case of weak economies (and African economies are weak) it leads to crises, which can have negative social and economic consequences. The burden usually falls on the economically weakest part of society and that are the poorest. The cause of such crises is irrational economic behaviour and, in case of undeveloped countries, corruption (Tang, 2015). Responsibility for the crises lays on national authorities which are obliged to minimise the risk of financial globalisation.

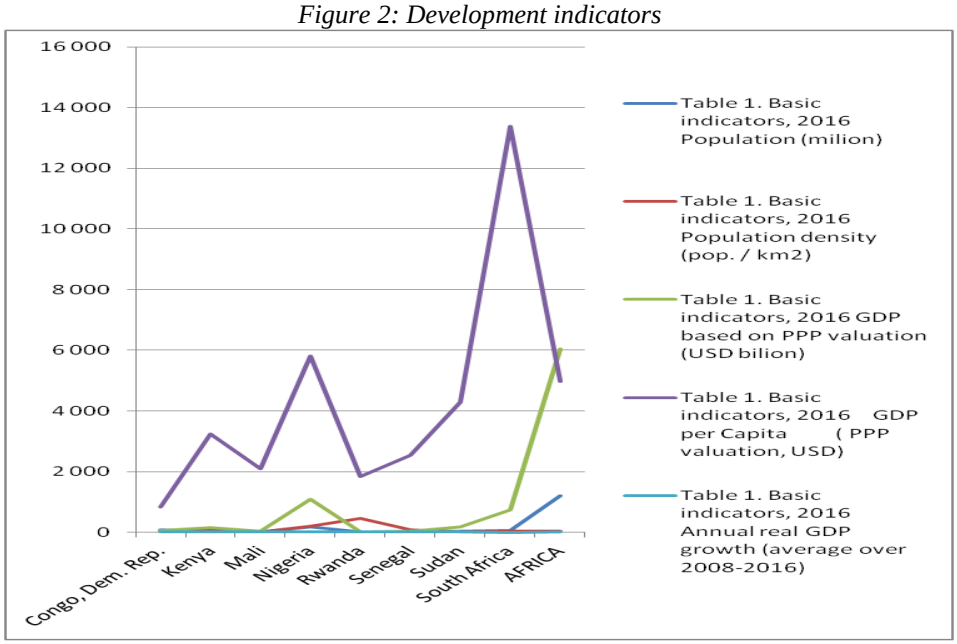
There are 54 countries in Africa. Amongst them, South Africa is the biggest economy (Wells, 2017). Table 1 and Figure 2 present economic changes in chosen countries.

Table 1: Africa and chosen countries – basic indicator, 2016

Basic indicators (2016)					
	Population	**Population density**	**GDP based on PPP valuation**	**GDP per Capita**	**Annual real GDP growth**
	(milion)	(pop. / km^2)	(USD bilion)	(PPP valuation, USD)	(average over 2008-2016)
Congo, Dem. Rep.	80	34	66	828	6,1
Kenya	47	81	153	3 232	5,3
Mali	18	15	38	2 100	4,4
Nigeria	187	202	1 089	5 824	4,8
Rwanda	12	451	22	1 849	7,2
Senegal	16	79	40	2 548	4,7
Sudan	41	22	176	4 282	3,6
South Africa	55	45	736	13 393	1,7
AFRICA	**1 214**	**40**	**6 040**	**4973**	**4,0**

Sources: United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects, The 2015 Revision

Figure 2: Development indicators



Source: Own study based on: World Development Indicators (last updated: 08/02/2017)

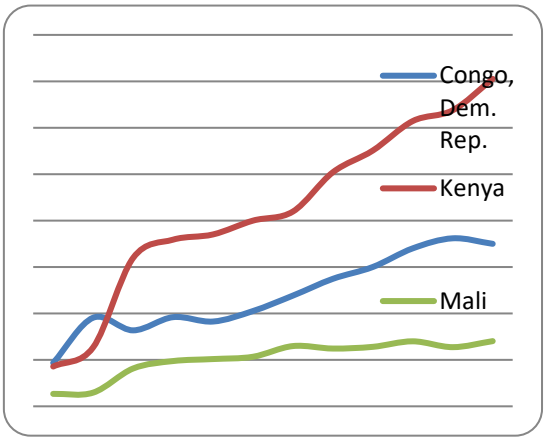
Since 1970s The Republic of South Africa has been going through a very tough process of transition from apartheid to democracy which started in 1994. There has been a huge discrepancy in the level of living between whites and blacks (Schmulow, 2017). This heritage is visible in the number of people living below the poverty line – it was more than 50% of the society. Changes forced by the debt burden have led to accepting liberal policies led by the World Bank and the International Monetary Fund. Currently, South Africa is the most developed country on the whole African continent (Herbst & Jeffrey, 2003). As stated by the World Bank in 2011 (World Bank, 2011) [World Development Indicators database, World Bank, 1 July 2011] GDP of The Republic of South Africa was equal to 285 billion $, while in comparison, in Nigeria it was only 173 billion $. As visible, the discrepancies are very apparent.

In order to analyze the dynamics in years 1990-2016, with an especially detailed focus on the period of 2007-2016, below figures present changes in different GDP dynamics systems for six African countries. In the analyzed period there is a visibly increasing trend in annual real GDP (average over 2008-2016), which is indicated by the data from the last column of Table 1 and Figure 2.

Considering only two most populated countries out of the chosen five - Nigeria and South Africa, it may be observed that that GDP has been rising with the visible impact of the global crisis at the end of the analyzed period: since 2011 in Nigeria and 2014 in South Africa.

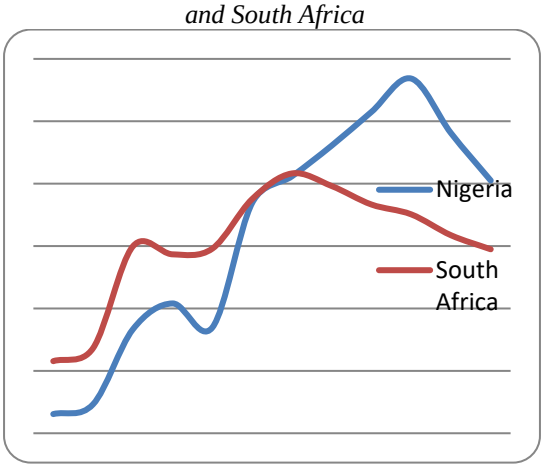
In countries presented on the Figure 3, with regards to changes in GDP, during the analysed period an economic growth and annual real GDP growth can be observed (*the average over 2008-2016*). Furhtermore, there is a strong midyear growth of GDP in the chosen countries with South Africa having the lowest rate of growth. Midyear growth of GDP of Rwanda attracts the attention due to the fact that the conflict there was the most noticable.

Figure 3: Dynamics of GDP of three African countries



Source: Own study based on Table 1

Figure 4: Dynamics of GDP growth in Nigeria and South Africa



Source: Own study based on Table 1

3. Conclusion

From the results of a descriptve approach of African dilemmas, with regards to globalised economic and social relations that were presented in the paper and supported with statistical data, arises a very diversified image. The purpose of pointing out the tragic, genocidal events in Rwanda (Gendron, 2010; Haskollar, 2016) was to present that in a civilised world the unpredictable human nature is capable of such cruel acts.

It can be concluded that the titular influence of globalisation processes in the special period of the globalisation crisis has a significant impact on the processes of economic growth and social development, including education and health care. Basing the research on growth indicator such as GDP and annual real GDP growth allows us to draw such conclusion (Horowitz & Ye, 2016). Shifting indicators of economic growth onto the evaluation of social development is usually justified. However, it is also stated that, apart from South Africa, despite strong social inequalities, the perspective through the prism of GDP per capita on economic and social situation in African countries is not very optimistic. On average it is usually not higher than 3 thousand $ and in most countries taken into account in this analysis it is lower than 2 thousand $ per capita. Such a situation is the source of many global processes. It also has a negative impact on social and economic situation of developed

countries. It results in intensified migrations, which are destabilizing the public space in many European countries.

Wealthy countries and big economies are facing a challange, which needs to be defined precisely and that is possible only with significant effort and good will of the leaders of many countries competing with each other on many grounds. Necessity of such a definition derives from the fact that globalisation has the influence on sustainable growth of undeveloped civilisations, including African countries. It is very optimistic, however, that in a real, globalised system there is a chance that despite its gloomy past experiences African problems and dilemmas may be settled.

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THE PHENOMENON OF INTERNET ADDICTION AS A GLOBAL PROBLEM OF THE PRESENT

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Abstract. Mobile technologies, in particular with the Internet access are increasingly becoming an indispensable tool used by young people. Internet users are increasing year by year, and its users use it to send e-mails, learn, read materials, use social networking sites, or access entertainment content (games, music, or movies). Internet usage has become so widespread and automatic. More and more often it is said about its abuse or technological addiction. This article presents the results of international student research conducted in 2015 in three European countries (Baltic): Poland, Lithuania and Latvia. The aim of the study was to determine the scale of network abuse by students. There were 1,048 students, including 690 women and 322 men over the age of 18.The research was carried out by the diagnostic survey method. It uses the technique of online survey using the portal Ankietka.pl. This article describes the scale of Internet abuse in the study group of students. Internet student abuse was determined on the basis of the results of the Internet Addiction Test (IAT) by K. Young. By comparing the results obtained by the respondents in the group of people at risk of Internet addiction and showing symptoms of abuse of that medium, the highest percentage of dysfunctional usage of the Internet is found among Polish students (13.7% of Polish sample) and the lowest among Latvians (8.2%). The average for all surveyed countries was 11.1%.

Keywords: Internet, addiction, young people

JEL Classification: C12, I12, L82, O57, O33

1. Introduction

In the days of globalization and „liquid modernity" (Bauman, 2003) using the Internet and mobile phones became the everyday life and necessity for the most of people. Almost half of the world's population uses the network and 2/3 of us are the users of mobile devices. The progressing technological changes are so dynamic that in the span of last 15 years the number of Internet users rose by 1000% (Digital in 2017 Global…, 2017). Day by day, the area and scale of taken activities among network members are rising. 37% of globe's population actively use social media and with this end in view 32% use mostly mobile devices. While only in Europe in 2016 the number of Internet users run at a level starting from 83% of continental population (in western part) to 64% (in eastern part). For comparison, in Poland the percentage equaled to 72.4%, in Lithuania 77.2% and in Latvia 76,3% (Internet Live Stats, 2017). The global development of the Internet and the Internet access commonness caused that modern young man functions simultaneously in two worlds: online and offline. As a rule, it does not bother him or her to use both environments independently and fulfilling the

range of needs (Krzyżak-Szymańska et al., 2016, B; Guglielmucci et al., 2017; Warzecha, 2016).

The advance in digital technologies leads to various positive applications, they are among others: promoting the mental health, education, leisure, communication and global contact. However, in the span of last two decades, there was a range of researches indicating that inappropriate use of digital technologies (mostly by juveniles and young adults) may result in many negative consequences connected among others with the overuse of those technologies (Kuss & Billieux, 2017), mainly the Internet and the phone (Krzyzak-Szymanska et al., 2016, A). M. Griffiths qualifies the overuse of the Internet as the technological addiction, in which there is a dependence between the machine and a human being, simultaneously, with the lack of physical intoxication (Griffiths, 1995; Young, 2017; Sariyska et al., 2016).

He distinguished the diagnostic criteria of the listed addictions and classified them as follows: psychosocial problems, health problems, negative professional and social effects and the symptoms characteristic for the traditional substance additions (the withdrawal symptoms, loss of control, mood change or rising need of using particular new digital technology (Kuss & Lopez-Fernandez, 2016; Kuss et al., 2014).

In subject literature there is no conformity for diagnostic criteria as well as for naming the discussed behavior as addiction, because in official health classifications (ICD-10; DSM-V) there is no such disease. That is why the researchers use interchangeably the following notions: the overuse, the problematic or pathological use or dysfunctional use of the Internet (Yoo et al., 2014; Reedi et al., 2015; Błachnio et al., 2014).

The empirical data indicate the rising scale of the overuse of Internet phenomenon among young generation. In Europe, there were 4,4% of pathological network users noted (starting from 1.2% in Italy to 5.8% in Slovenia (Durkee et al., 2012). In Poland the amount was from 2,1% (Poprawa, 2011) to 3.5% (Pawłowska & Potembska, 2011). Additionally, in this country, the intensification of the phenomenon was researched among the students and it was defined on the level of 4.3% among women and on the level of 6.3% among men (Cudo et al., 2016). Whereas, in Latvia and Lithuania research concerning the scale of phenomenon among young adults was not conducted at all.

The objective of this work is the definition of risk level of being in danger of the addictive Internet use among students living in countries located on the Baltic coast i.e.: from Poland, Lithuania and Latvia and the distinction of significant statistic differences between the researched groups of students in the range of the intensifying symptoms of network addiction.

2. Presentation of own research results

2.1. Methodological research aspects

The research was conducted online with the use of Ankietka.pl portal in 2015. The main course of action was adopted by diagnostic opinion poll method and in the range of the main course Kimberly Young's Internet Addiction Test (IAT) and author's questionnaire were used.

1048 students cumulatively from three European countries were researched. There were: 466 people from Poland, 268 people from Latvia and 314 people from Lithuania. The researched students were aged 18 and more. In the group of respondents, 28% were aged 18-

20, 29% were aged 21-23 and 43% were aged 24 and more. Among the respondents there were 2/3 of women and 1/3 of men.

2.2. Addictive Internet use

The researched students commonly use the Internet. 70% of them use the Internet for 3 or more hours on weekdays, 23% dedicate for it on average 1-2 hours per day and the others use it for less than 1 hour a day (4%) or they do not use it all (3%). During the days off from school and holiday days 60% of the respondents devote 3 or more hours for the Internet, 27% use it on average from 1 to 2 hours and 10% of respondents spend half an hour in the Internet during the whole day. The others do not use the discussed medium. The most numerous group spending more than 3 hours in the Internet on weekdays as well as weekends and holiday days are Latvians.

To specify the way respondents use the network it was defined what activities they take in the Internet and what is their frequency. The analysis of the received results indicates that over 2/3 of students use the Internet at least few times a week to send emails, to learn, to read materials, to use social portals or to entertain themselves (by playing games, listening to music or watching films). The smallest degree, meaning on average, every 7th respondent uses the network (with the above mentioned frequency) to collect information about journeys, sex, downloading and sending various forms online. Only 13% of the respondents create their own websites. After checking the activities that are taken most frequently by respondent students from particular countries it can be stated that they use the Internet for their own education, at least few times a week in an equal level, no matter what their nationality is. Latvians send emails, use Wikipedia and gather the information about goods and services more frequently than Poles and Lithuanians. While Polish students use, in the higher degree than their colleagues from other countries, the entertainment online sources such as: music, films and games and they are more active in the participation in the life of social portals. When it comes to Lithuanians, they read various texts online more frequently than others.

The phenomenon of overuse of the Internet by respondent students was defined on the basis of IAT (Internet Addiction Test) by K. Young. It is the most frequently used measuring tool in research concerning this problem and its psychometric characteristics were confirmed in many studies. The test consists of 20 descriptions of the Internet overuse symptoms. The respondent person is to define how frequently he or she observes particular behavior in his or her life. The test is scored from 0 to 100 points. With the use of the results from IAT there is a possibility to define 4 kinds of Internet users as regards the scored points. They are as follows: the respondents not showing the symptoms of the Internet overuse (0-19 points), the respondents slightly showing the symptoms of the Internet overuse (20-39 points), the respondents being in danger of the Internet overuse (40-69 points) and the respondents with the symptoms of the Internet overuse (70-100 points). On the basis of the collected data in the general scale from IAT it was stated that 1.3% of respondents are addicted to the Internet, 8.6% belong to the group of people being in danger of pathological Internet use, 18.8% of respondents slightly reveal the symptoms of the Internet overuse and 71.3% use the Internet in a correct way. The data from this area is presented in Table 1.

Table 1: Scale of the Internet overuse by respondents with the division for countries

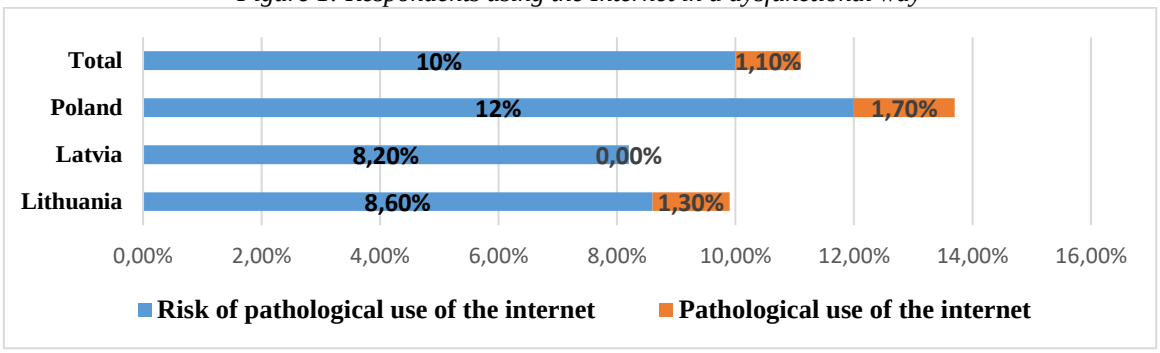
Level of use	***Country***						***Total***	
	Poland		***Latvia***		***Lithuania***			
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Correct Internet usage	710	67.7	283	60.7	203	75.7	224	71.3

Single symptoms of Internet addiction	221	21.1	119	25.5	43	16.0	59	18.8
Risk of Internet addiction	105	10.0	56	12.0	22	8.2	27	8.6
Internet addiction	12	1.1	8	1.7	0	0.0	4	1.3
Total	1048	100.0	466	100.0	268	100.0	314	100.0

Source: own study

Comparing the results received from the respondents being in danger of Internet addiction and those who reveal the symptoms of overusing this medium, the highest percentage of dysfunctional Internet users can be noticed among Polish students (13.7% of Polish sample), and the lowest percentage can be found among Latvian students (8.2% of Latvian sample). The average for all of the researched countries equaled to 11.1% (see Fig. 1).

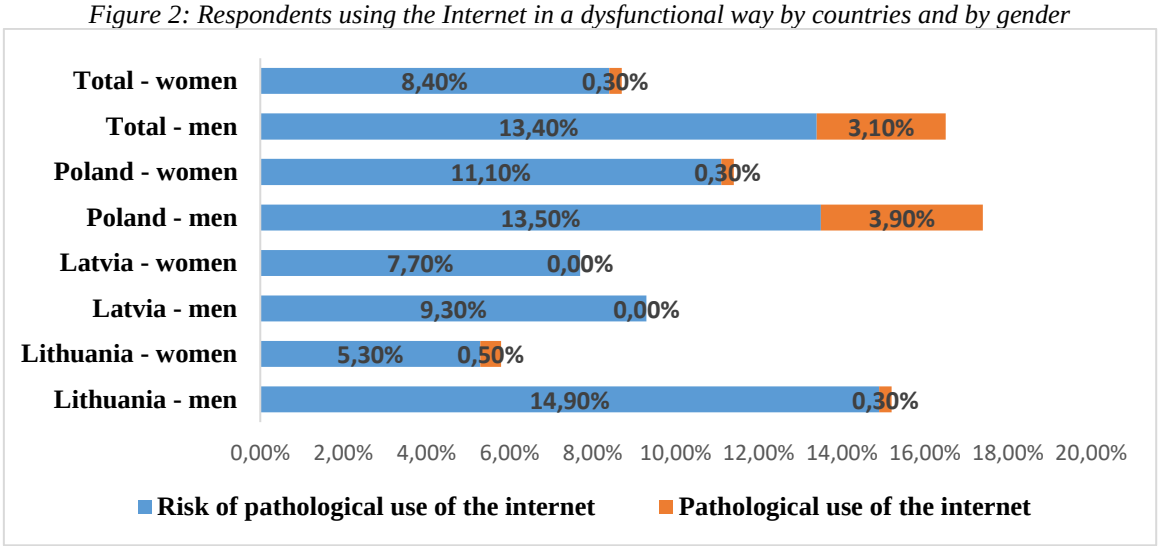
Figure 1: Respondents using the Internet in a dysfunctional way



Source: own study

The obtained results are differentiated as regards the gender. The respondent men more frequently reveal the symptoms of being in danger of addiction or overusing the Internet than women, it is on average by 8%. The biggest difference between women and men who reveal compulsive behavior in the discussed range is among Lithuanian respondents- in the group of people using the Internet in a dysfunctional way there are 12% more men than women. On the other hand, the smallest difference in the same range can be found among Latvian respondents- only 2% more (see Fig. 2).

Figure 2: Respondents using the Internet in a dysfunctional way by countries and by gender



Source: own study

K. Young isolated within the scope of IAT six subscales concerning various aspects of the Internet overuse. The average results of IAT subscales for people using the Internet in a functional and dysfunctional way are presented in Table 2. Analyzing the obtained results, the percentage share of particular scales in the general test result is especially important. As it results from the data included in the table, the biggest difference concerns the Internet Salience subscale, which is equal to 16.1% of the test result for people using the Internet in a functional way and to 23.5% for people using the Internet in a dysfunctional way. The difference is significant, because the result of this scale is connected mainly with the mental symptoms of Internet overuse, e.g.: intensive thinking about the Internet. That is why it is necessary to say that in people using the Internet in a dysfunctional way the issue of mental attachment to network activity is particularly important.

Table 2: Mean IAT subscales results among people using the Internet in a functional and dysfunctional way

Subscales IAT	**Functional use of the Internet**			**Dysfunctional use of the Internet (including the risk of addiction)**		
	mean	SE	significance in the general results of the test	mean	SE	significance in the general results of the test
General results of IAT	19.45	9.55	100.0 %	53.98	13.16	100.0 %
Salience	3.13	2.79	16.1 %	12.71	4.44	23.5 %
Neglect social life	1.66	1.30	8.5 %	4.61	2.25	8.5 %
Lack of control	2.96	2.20	15.2 %	8.68	2.59	16.1 %
Excessive use	5.45	3.09	28.0 %	13.84	3.50	25.6 %
Neglect work	3.05	2.16	15.7 %	8.23	2.44	15.2 %
Anticipation	3.22	1.77	16.5 %	6.04	1.82	11.1 %

Source: own study

The obtained results shown in Tables 3-5 confirm the existence of statistically significant differences in mean IAT results and in IAT subscales results received by the researched group ($p<0.05$). The general IAT results obtained by Polish students ($M_1 = 30.08$; $S_1 = 18.91$) are significantly statistically higher than the IAT results obtained by Latvian students ($M_2 = 23.08$; $S_2 = 14.64$) or by Lithuanian students ($M_2 = 25.09$; $S_2 = 16.94$).The students from Poland obtained considerably higher mean results in particular IAT subscales than Latvian students and considerably higher mean results in particular IAT subscales (with the exception of the scale connected with neglecting of social life) than Lithuanian students (significant differences were marked yellow in Table 3-5).

Table 3: The comparison of mean results from IAT by K. Young in general scale and in subscales obtained by Polish and Latvian students

Analyzed scale IAT	**Poland**		**Latvia**		**t**	**p**
	M_1	S_1	M_2	S_2		
Result in the general scale of IAT	30,08	18,91	23,08	14,64	5,589	0,001
Salience	5,82	5,49	4,32	4,25	4,119	0,001
Neglect social life	2,55	2,01	2,05	1,73	3,584	0,001
Lack of control	4,68	3,42	3,47	2,85	5,152	0,001
Excessive use	8,03	4,88	6,62	4,28	4,074	0,001
Neglect work	4,77	3,10	3,35	2,77	6,235	0,001
Anticipation	4,22	2,20	3,28	1,94	6,057	0,001

Source: own study

Table 4: The comparison of mean results from IAT by K. Young in general scale and in subscales obtained by Polish and Lithuanian students

Analyzed scale IAT	Poland		Lithuania		t	p
	M_1	S_1	M_2	S_2		
Result in the general scale of IAT	30,08	18,91	25,09	16,94	3,765	0,001
Salience	5,82	5,49	4,91	4,95	2,33	0,020
Neglect social life	2,55	2,01	2,10	2,05	3,035	0,002
Lack of control	4,68	3,42	4,01	3,25	2,722	0,007
Excessive use	8,03	4,88	6,57	4,53	4,169	0,001
Neglect work	4,77	3,10	3,89	3,08	3,890	0,001
Anticipation	4,22	2,20	3,69	2,04	3,394	0,001

Source: own study

Table 5: The comparison of mean results from IAT by K. Young in general scale and in subscales obtained by Latvian and Lithuanian students

Analyzed scale IAT	Latvia		Lithuania		t	p
	M_1	S_1	M_2	S_2		
Result in the general scale of IAT	23,08	14,64	25,09	16,94	-1,536	0,125
Salience	4,32	4,25	4,91	4,95	-1,532	0,126
Neglect social life	2,05	1,73	2,10	2,05	-0,348	0,728
Lack of control	3,47	2,85	4,01	3,25	-2,122	0,034
Excessive use	6,62	4,28	6,57	4,53	0,121	0,904
Neglect work	3,35	2,77	3,89	3,08	-2,202	0,028
Anticipation	3,28	1,94	3,69	2,04	-2,501	0,013

Source: own study

3. Conclusion

The conducted research indicates that 1.3% of respondent students reveal the characteristics of Internet addiction and 8.6% belong to the group pathologically using the Internet, while 90.1% of respondents use the network resources in a functional way.

It was established that the highest percentage of dysfunctional Internet users (people revealing the characteristics of addiction and those being in danger of addiction) was among Polish students (13.7% of Polish sample) and the lowest among Latvian students (8.2% of Latvian sample). The mean result for all of the researched countries equaled to 11.1%.

The respondent men more frequently than women (by 8% on average) reveal the symptoms of Internet overuse or danger of overuse. The biggest difference between men and women revealing compulsive behavior in the discussed range can be found among Lithuanian respondents- men reveal the symptoms of addiction by 12% more than women. On the other hand, the smallest difference in this range was noted among Latvian respondents- by 2%.

The research indicated that there are significant differences between students from Poland, Latvia and Lithuania as regards the intensification of the Internet addiction symptoms which were measured with the use of Kimberly Young' s IAT.

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ROPO EFFECT IN THE FOOD INDUSTRY IN WOMEN ASSESSMENT

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Abstract. E-commerce permanently and dynamically develops, and the key determinants of popularity growth are lower prices, convenience and the possibility of shipping 24 hours per day. However, not all industries develop equally. Food products belong to one of the less popular industries in the Polish e-commerce sector. Although there were 424 e-shops in Poland offering food products, most of them were small specialized services with a small amount of products. On the other hand, there are a few large trading platforms like Tesco, Auchan, E.Leclerc and Piotr i Paweł. One of the problems in e-commerce is the impact of ROPO effect, i.e. the increase in the number of people, who take advantage of the Internet solely to check information, prices or opinion about a certain product, and they purchase products in a traditional shop. The aim of this publication is to identify the value of ROPO effect in the food industry in Poland among women. Women, like in the clothing industry, buy good products more often than men. In order to achieve the goal, the following research hypothesis was formulated: the value of ROPO effect in the food industry is small.

Keywords: ROPO, food industry, ROPO effect, e-commerce

JEL Classification: L81, L86, O32

1. Introduction

Despite the dynamic and constant increase in the popularity of e-commerce, the food industry as one of the few industries does not use the existing potential. The Internet has revolutionized commerce in every aspect. The development of the Polish e-commerce sector causes the expansion of the market and acquisition of new customers, especially from abroad. The growth of the global and Polish economy increasingly depends on the economy and online commerce. Researches of the Center for Retail Research show that in Poland, already in 2011, the percentage share of e-commerce in the whole domestic retail sales was 3.1 %. The biggest share among European countries was noted in Great Britain 12%, Germany 9%, Switzerland 8,7%, but in Spain – only 3,5% (Skórzewska, 2011).

The widespread use of the Internet and mobile devices had led to the fact that today's consumer has the opportunity to acquire information about products in almost any location and time. This has a significant impact on his or her behavior and purchasing decisions (Dakduk et al., 2017). Consumers turn into prosumers, who actively participate in the marketing communications between a company and society. The trend concerning the presentation of shopping experiences is becoming more and more popular. Therefore, website such as forums, social networks, search engines or e-shops more and more often become the primary source of information in the purchasing process. Price comparators are particularly popular. Thanks to them, a potential customer can find information about the e-shop, which

offers the cheapest offer for a desirable product. The development of e-commerce determines the creation of innovations in related areas: payments, logistics and advertisement (Szymański, 2016).

1. Good industry in Poland

The food sector can be interpreted differently, and it usually is connected with the manufacturers of food products. Although it includes products for humans and animals, as well as all kinds of beverages, it excludes the producers of agricultural products and livestock farmers, including fishery and fishing. By distinguishing the sector from the industry, it is possible to define the sector as a group of enterprises that produce goods in a form of substitutes (Fudaliński, J., 2002). On the other hand, the concept of the industry is often associated with the concept of the industry market that is emitted on the basis of ability to satisfy a certain elementary need (Bain, 1959). In this publication, the analysis of food products will be connected with the analysis of the industry. The food industry in Poland is characterized by a constant growth. Over the last 10 years, the market value has increased by nearly half. In accordance with data developed by the PMR research company in 2015, the value of the industry reached 245 billion PLN, and the estimations for 2017 are 255 billion PLN (PMR, 2016). The majority of the market is dominated by modern forms of retail trade. In 2005, they represent 43% of the total retail sales value in Poland, while in 2014 – this result increased to 77% (Grauer et al., 2015). The market growth is also connected with the expansion of the infrastructure. At the beginning of 2017, about 10 thousand m^2 of shopping mall space was put into use in Poland, and the total reserves of modern retail space was approx. 11,2 million m^2. At the end of March 2017, about 550 thousand m^2 of shopping mall area was under construction (Newsrm, 2017). The growth in the food market in recent years was probably connected with the rising incomes and individual consumption, while its slowdown is affected by deflation. Currently, another determinant influencing the dynamics of the industry's development is the implemented government project under the name Family 500+. The large part from this program should increase the consumption of good products. Other important factors in the analyzed industry are customer expectations, satisfaction and awareness. The awareness of consumers manifests itself in a greater demand for healthy and ecological products (Haklova & Zavodny Pospisil, 2015), (Lauzikas et al., 2015). Determinants influencing the expectations include: low prices, origin of products, popularity and convenience. The popularity of food products is usually created by advertising activities. However, Polish consumer is still characterized by the so-called smart shopping, i.e. searching for the lowest prices – such prices can be found in discounts and online sales. On the other hand, the growing trend towards healthy food causes that the consumer is open to new forms of sales, and low prices less often decide on his or her purchasing decisions. The most important behaviors of consumers in the food industry include (Roland Berger, 2017):

- increase in the frequency of individual purchases,
- growing importance of a shop's location (near the house),
- longer and longer opening hours,
- easy access to the shop and parking spaces,
- increased availability of unique products,
- increased availability of fresh, healthy and ecological products,

- increased importance of regional and national products,

- maintaining the importance of loyalty programs, special offers and other forms of promotion.

Each of assortment categories in the food industry is characterized by different demand potential. The best financial situation is presented by the sectors of production: bakery products, fresh pastry goods and pastries, ready-to-eat pet food, meat products, including poultry meat products and sectors of distillation, rectification and mixing of alcohols, processing and preserving of meat, excluding poultry meat. They show a high level of the rate of return on capital, using the appropriate financial policy and the effective management of enterprise's assets (Florek et al., 2013). Because of the stormy market conditions, enterprises need more and more information about customers and competitors in order to create an atmosphere of trust that will lead to the increased interest in their products (Brzozowska et al., 2015).

Polish manufacturers and exporters are constantly diversifying their supply directions. For a few years, slow decline in the share of export to the EU with an increase in the share of eastern markets is observed. However, food products still constitute a segment of the least-purchased products via the Internet. In 2014, there were 424 online shops in Poland – mainly small shops with a specialized assortment. There were a few shops with a wide offer comparable to super markets. Nowadays, Polish e-commerce in the food industry is developing more dynamically. In the last years, 44% of new shops with the above-mentioned assortment were created (InternetStandard, 2016).

2. The essence and form of ROPO effect

The ROPO effect (Research Online, Purchase Offline), is a process of searching for information about products / manufacturers on the Internet, but the purchase itself is realized in a traditional form. This phenomenon is one of the major problems for e-commerce enterprises, because the failure to complete the transaction does not bring the expected profits. The development of the e-commerce sector has contributed to the creation of more advanced apps and online services that support individual elements of the purchasing process. The easy of finding and the large amount of information available on the Internet causes that potential customers often use this medium as a primary source of information. The problem of ROPO effect is global and it covers the majority of industries and countries (Seitz, 2015). The following stages are highlighted in the decision-making process (concerning the purchase): awareness of need, searching for information, assessment of alternatives, making a purchase and behavior after purchase. The ROPO effect is most visible in the phase of the search for information and assessment of alternatives. In the first stage, the customer identified his or her needs that can be categorized into endogenous, i.e. inducted by the customer itself, and exogenous, where the initiator of the need comes from the outside, e.g. promotion or friend's recommendation (Salleh et al., 2016). In the phase of searching information about the products by potential customers, promotion is also visible, but actions are aimed at informing the recipients about the existence of a particular shop or product. Verification of existing offers is more and more often supported by online tools and services, and even by social media. The obtained information is more reliable in comparison with advertising messages or information presented in expert services. Moreover, the information has substantive value, and the opinions of other consumers are a valuable source of opinion. The third stage (the most important from the point of view of e-commerce sector) of making a purchase decision

is connected with the verification of offers. This phase covers the estimation of the collected alternatives, and promotional activities concern the indication of advantages of a company's offer in relation to competition. The majority of Internet users, when deciding on a particular shop, take into account such factors as the lowest price, brand, possibility of personal collection and total transaction costs. Searching for online platforms offering the desired product at the lowest price is often associated with the use of additional supporting tools like price comparators or auction platforms. Clients very often choose enterprises that enable personal collection – this reduces shipping costs and shortens delivery time, and in the case of expensive goods – personal collection increases the security of the entire transaction. At the decision-making stage, actions that reduce the ROPO effect should be correlated with greater security and avoidance of unexpected disincentives. In the e-commerce sector, there is a concept of "shopping cart abandonment". It is characterized by a factor that informs about the number of people, who have resigned from the online purchase during the process of finalizing the transaction. The most common causes concerning the "abandonment of shopping cart" include too complicated procedure (characterized by the obligation to enter too much data) and additional charges resulting from the choice of payment method or product delivery. An important factor is also employees, who are able to respond quickly and professionally to customers' inquiries. At the last decision-making stage, an adequate support of customers by employees, who care about their positive feelings and opinions, may be important.

The ROPO effect is not only connected with goods, but it was also identified among services. According to the researches, the ROPO effect is present among Polish consumers in the service purchase process (the strongest in the case of culture, tourism and transport services (Wolny, 2016).

Definitely the most important factor of the ROPO effect for clients is the desire to have direct contact with the product before purchase. This is essential for the purchase of clothing, cosmetics and footwear. On the other hand, less impact is probably visible in the case of goods from furniture industry, book industry or food industry. It is also worth pointing out that the same factor is very important with the reverse effect of ROPO (reverse ROPO, r-ROPO). Reverse ROPO is characterized by searching for product and information about it in traditional shops, while the purchase is made through online trading platforms. The key catalyst is the lower price of products in the e-commerce sector, while the opinion about a certain seller and the physical contact of the client with the product. The literature of the subject also includes the acronym of ROTOPO (Research Online, Test Offline, Purchase Online), i.e. a more expanded model. ROTOPO takes into account the most important advantages of both purchasing forms, extensive access to information in the network, the ability to see a certain product before purchase and lower prices in e-commerce.

3. Results and Discussion

The shopping behaviors of men and women are different the majority of cases. Women and men differ in the reasons, for which the value their possessions. Moreover, shopping motivations and expectations seem to be determined by gender, e.g. women demonstrate a more positive attitude towards shopping, browsing goods, social interactions and they combine shopping with leisure (Cebula, 2016). Furthermore, women pay more attention to ecological products (IMAS International, 2017).

Women are more likely to prefer well-known products and they do not seek market innovations in the food industry. 38,4% of women think that in accordance with the Rogers curve, they are a group of marauders, i.e. people, who only reach for novelties, when the product is already known in the market (Białoskurski, 2015). Additionally, women in households spend more money than men. This is connected with the fact that they make 80% of purchasing decisions (94% of expenses on home fitments, 92% of expenses on holidays, 91% of expenses on the purchase of house or flat, 60% of expenses on the purchase of a car) (Piersiala, 2014). It was also stated that women go shopping to see products as a relaxation activity, while men go shipping to meet their needs and they treat this activity as a duty ((Durakbasa & Cindoglu, 2002). Women also start their Christmas shopping earlier and they usually give more gifts than men (Fischer & Arnold, 1990).

The raw data, needed for the analysis, was obtained in a survey conducted within the framework of a scientific cooperation with Opiniac. The data was also used to prepare the report „Panel research ROPO 2016, preferences and behaviors of consumers in the omni-channel environment – 2016“ (Opiniac, 2016). Among 10629 women, who took part in the study, 5002 of them have recently purchased food products. The study time is June 2016. A convenient selection fo a test was intentionally applied. The questionnaire was presented on popular information portals and many e-commerce platforms connected with the food products. By taking into account the amount of the examined population of Internet users – women, in the amount of approx. 7 million in Poland, for a test sample of 5002 units, a confidence level of 0.99 and an estimate error of 0.01 were obtained.

By analyzing the data in Table 1, it can be concluded that the factor of ROPO effect for the food industry is about 16%, i.e. the every sixth respondent checks information on the Internet before making a purchase at a traditional shop. Despite differences in responses of women and men (age), these are slightly statistical discrepancies (Table 1) – there was no correlation between age and sex (Chi2 >24, p = 0,24). Nevertheless, it should be noted that the ROPO coefficient received a relatively low value for the analyzed industry, approx. 84% of interviewed women said that they do not search any information on the Internet. Perhaps this is due to the characteristics of food products that are predominantly FMCG products (Fast-Moving Consumer Goods), purchased much more frequent than in the case of other industries. Women often have their own opinions about brands and quality of products. They do not need to search any information on the Internet about the food assortment that is known to them. On the other hand, they usually know novelties on the market from advertisements (Pileliene & Grigaliunaite, 2017).

Table 1: Value of ROPO effect in the food industry in accordance with the age

Age	ROPO effect for women	ROPO effect for men	Average assessment of information obtained on the Internet
under 18	8,58 %	11,69 %	4,40
18-24	14,17 %	14,55 %	4,22
25-33	17,52 %	13,23 %	4,27
34-42	16,26 %	15,05 %	4,30
43-55	18,58 %	20,40 %	4,14
over 55	20,77 %	25,00 %	4,10
average	16,18 %	16,39 %	4,24
Parameters of statistical tests	Chi square = 24,002 p = 0,242392; dp = 20		-

Source: Own study on the basis of the raw data provided by Opiniac within the framework of cooperation with the Organization and Management Department in the Łódź Technical University used in the report "Panel

research ROPO 2016, preferences and behaviors of consumers in the omni-channel environment", http://go.opiniac.com/ropo2016, (30.09.2016)

Surprisingly, the ROPO coefficient increases with age. The analysis of this phenomenon could be a subject of further qualitative examinations. Women under the age of 18 least often (8,58%) are looking for information about food products before the purchase. On the other hand, more than twice the oldest respondents browse information on the Internet. This seems to be an unexpected result.

Another evaluated area was a subjective assessment – in which extent information obtained on the Internet influenced the purchasing decisions of respondents. The respondents could make a choice from 1 to 5, where 1 meant a total lack of impact, while 5 – very significant impact. The obtained results (average – 4,24) indicate the significant influence of information found in the network. An interesting aspect would be the analysis of the nature of this influence. It seems that negative opinions found on the Internet are more important for women than positive opinions. Furthermore, it can be seen that the youngest women demonstrated the greatest importance of information in comparison with other age groups, especially over 55 years old.

Various behaviors of the analyzed age groups of women also result from the habits and views of generations. Nowadays, there are three basic groups on the market: generations X, Y and Z. Generation X includes people born before 1980. Millennials, so-called generation Y, are people born between 1980 and 2000 and younger people, i.e. generation Z. Generation Z consists of young people, who are familiar with new technology and this technology is a natural environment for them. They do not remember the times without the Internet, so searching for information in the network before the purchase is something natural for them. Moreover, good knowledge of browsers and mobile applications enable them to quickly and efficiently find the information that may be a problem for older generations.

4. Conclusion

In a highly competitive food industry, enterprises implement modern solutions in order to meet expectations and requirements of customers. Women are more important than man as a target of the analyzed industry. The researched showed that as many as 70% of examined women had recently purchased a food product, where this state was only confirmed among 60% of men. The industry is characterized (in the majority of cases) by fast-moving products what considerably reduces the need to systematically search for information about goods before their purchase. The ROPO effect is usually strong, when dealing with relatively expensive products and when the purchase is not impulsive or routine. Taking into account the obtained results of examinations, the hypothesis posted in the introduction has been positively verified, i.e. current value of the ROPO effect in the food industry is small. Despite the dynamic development of e-commerce and the increasing share of mobile devices in this area, there are no indications in the near future of a significant change in the value of the ROPO effect in the food industry. The obtained data is subjective. This reduces the credibility of the results, but a large research sample enables to formulate general conclusions. Further researches should be aimed at the qualitative form, identifying the reasons for seeking information on the Internet about food products. Moreover, it is worth to take into consideration the causes of a big impact on the decision-making process, especially among the youngest women. Perhaps this is related to generational behaviors and habits.

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ECONOMIC AND INSTITUTIONAL DEVELOPMENT OF RUSSIAN REGIONS IN THE CONTEXT OF THE GLOBAL SOCIO-ECONOMIC PROCESSES

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Abstract. In the scientific literature for a long time the question of the causes of differentiation social and economic space of the planet in the face of increased availability of technical-technological and information resources was discussed the view to the interdependence of the institutional and socio-economic characteristics of systems as a reason specified differentiation currently dominates. This article offers an analysis of one of the institutional characteristics of the Russian regions-type economic behavior, in conjunction with the results of the socio-economic development. As the institutional characteristics of accepted divisions of behaviors on the hedonistic and ascetic. To assess the type of conduct there were suggested five options that reflect the overall ratio of consumption levels, savings, borrowings. Authors analyzed of the socio-economic and institutional development of Russian regions in the context of the modern trend of differentiation of participants of the global economy. Results of the research is the analysis of indicators of socio-economic development of the regions for the period suggests a relationship between the type of economic behavior and socio-economic development. Regions with hedonic type economic behavior have lower levels of socio-economic development than ascetic. They are distinguished by a high dependence on the State of the economy. The regions with the ascetic type economic behavior significantly more developed in any economic environment. At the same time, the continued high level of socio-economic development of the regions (and probably other administrative-territorial formations) requires conditions to ensure the practical realization of the potential of ascetic type of economic behavior.

Keywords: regions of Russia, the type of economic behaviour, socio-economic development of the regions

JEL Classification: F60, O33, R11

1. Introduction

The problem of the correspondence of the vectors of social and economic development of countries and other administrative-territorial entities to the general trends of the global economy has not at present been sufficiently substantiated. Researchers have been interested in a high differentiation of countries in terms of the level and pace of their economic

development, and in the quality of solving social problems, when capabilities of a technical and technological plan are obvious.

His conclusions about economic policies had influenced a lot on the major developed countries for many decades. It was aimed at drawing the lagging periphery into the general economic growth and enhancing the level of social security for various strata of the population that allowed involving of a part of the "economic periphery" into global socio-economic processes. Differentiation as a whole is not decreasing; the zone of immunity of economic and social progress remains broad. Moreover, this zone can be considered dominant, which is confirmed by reproduction over many decades of the "golden billion" in a limited space. The state of formal and informal institutions that form a certain type of economic culture, economic behaviour is a kind of explanation. In particular, Bodrijar, Z. H. (Bodrijar, 2014), Brennan, Dzh., B'yukenen Dzh. (Brennan & B'yukenen, 2005), Dzhejms A. (Dzhejms, 2012), Oechslin, M. (Oechslin, 2010), Bennett, Daniel L.; Faria, Hugo J., Gwartney, James D. (Bennett et al., 2017) pay attention to this fact. F. Fukuyama (Fukuyama, 2012), analyzing institutions of various countries, came to the conclusion that economic behaviour of people is the basis of economic development of the country.

Numerous studies by Russian authors have shown that within the framework of one country, completely different results of economic development of regions are achieved. Vertakova, Y., Polozhentseva, Y., Klevtsova, M. (Vertakova et al.,2014), Morkovina, Svetlana (Morkovina, 2016), Vertakova, Y., Polozhentseva, Y., Klevtsova, M. (Vertakova et al., 2015), Babkin, A.V., Plotnikov, V.A., Muraveva, S.V. (Babkin et al., 2015), Vertakova, Yulia; Polozhentseva, Yulia; Klevtsova, Maria (Vertakova et al., 2016), Plotnikov, V., Volkova, A. (Plotnikov & Volkova, 2015), Plotnikov, V., Volkova, A. (Plotnikov & Volkova, 2014), Ostrovnaya M, Podkolzina E. (Ostrovnaya & Podkolzina E, 2015) wrote about it. The authors also obtained data on qualitative differences in various parameters of the economic and innovative development of Russian regions. This circumstance is essential for testing the hypothesis about the influence of informal institutions on the results of socio-economic development of socio-economic systems. Indeed, most formal rules of behaviour are the same in all constituent entities of the Russian Federation providing with significant differences in regional development levels. Consequently, it can be assumed that influence of informal rules on the results of socio-economic development depends on informal institutions, in particular - the type of economic behaviour.

2. Methods of the research

The author has taken the regions of Russia as socio-economic systems since they represent elements of the same large system operating under the same formal rules. The regulatory and legal framework for economic activity in these regions is the same. It is federal legislation. Regional and local regulations cannot change significantly the conditions of economic activity. Russia is represented by a significant number of regions, which guarantees a broad static base. The author has analyzed only 79 regions, since it is not possible to obtain complete comparable data for all of them over a long period. The author has also considered various periods of the country development. They are the end of the system crisis of the 90s of the XX century (in 2000); a period of high economic conjuncture (in 2005); the way out of the crisis and low economic conditions (in 2008-2009, the beginning of 2010) and stable economic situation, low level of economic conjuncture (in 2013). The level of social and

economic development of groups of regions was estimated by the method of virtual clustering.

3. Results

When studying, the author identified 25 indicators (variants) characterizing various aspects of socio-economic development of the regions, presented in the official statistics related to Russia and its regions (Table 1).

Table 1: Indicators of the level of social and economic development of regions in Russia

№ of the variant	Names of indicators and their groups
1. Absolute indicators of the level of social and economic development of the region	
Var 1	Number of economically active population (thousand people)
Var 2	Average annual number of employees in the economy (thousand people)
Var 3	The coefficient of migration increase (per 10 000 people of the population)
Var 4	The level of economic activity of the population (%)
Var 5	Reverse to the level of unemployment: (100 – (minus) the unemployment rate (unemployed – according to the ILO methodology))
Var 6	Average monthly nominal accrued wages of employees of organizations (rubles per month)
Var 7	GRP per capita (rubles)
Var 8	The indicator, the reverse of the degree of depreciation of fixed assets: 100 – (minus) degree of depreciation of the fixed assets (%)
Var 9	The number of personnel engaged in research and development (people)
Var 10	Created (developed) advanced production technologies (units)
Var 11	Used advanced production technology (units)
Var 12	The volume of innovative goods, works, services (million rubles)
2. Indicators of distribution of labor resources according to the spheres of employment and the level of education	
Var 13	Distribution of the average annual number of the employed in the economy by ownership forms (thousand people): state
Var 14	Distribution of the average annual number of employed in the economy by ownership types (thousand people): private
Var 15	Members of the employed population by the level of education (%): higher professional
Var 16	Members of the employed population by the level of education (%): secondary vocational
Var 17	Number of students enrolled in the programs of secondary vocational education (thousand people)
Var 18	Number of students enrolled in the programs of Higher Professional Education (thousand people)
3. Indicators of income distribution in the region	
Var 19	Average per capita monetary income of the population (rubles per month)
Var 20	Income from business activities (%)
Var 21	Income from property (%)
Var 22	The share of the population with incomes above the subsistence level: (100 – (minus) the population with cash incomes below the subsistence level (%)
Var 23	Structure of using the cash income of the population: the purchase of goods and services (%)
Var 24	Structure of using the cash income of the population: the purchase of goods and services (%)
Var 25	The structure of using the money income of the population: growth of financial (%)

Source: www.gks.ru

Although the author has distributed the indicators for groups 1, 2, 3 in order to make a very thoughtful analysis of the structure of social and economic development indicators in the

regions, this analysis is given only for better understanding the issue. Due to the fact that the indicators have different dimensions, they are given in a comparable form by means of a standard procedure of rationing. Ranking of the clusters is carried out in the following way: the best in the sum of the values of indicators is "A", the rest in the sequence – "B", "C", "D", "E". The state of the indicators of the clusters of social and economic development of the regions is related to 2000, 2005, 2010, and 2013. The status of the indicators of socio-economic development of virtual clusters in 2013, formed by the Russian regions, is given as an example in table 2.

Table 2: Clusters of socio-economic development of the Russian regions (2013)

Indicators	Cluster A	Cluster B	Cluster C	Cluster D	Cluster E
Var 1	0.658730	0.256275	0.068160	0.094232	0.050288
Var 2	0.609448	0.239521	0.069048	0.088131	0.037123
Var 3	0.838741	0.474654	0.211283	0.402111	0.217216
Var 4	0.578740	0.379467	0.662402	0.391601	0.326056
Var 5	0.988152	0.905942	0.900770	0.900158	0.663507
Var 6	0.502457	0.132250	0.641288	0.124969	0.080838
Var 7	0.390081	0.147466	0.533076	0.127831	0.047130
Var 8	0.638262	0.340081	0.544173	0.449791	0.573023
Var 9	0.564470	0.057581	0.008402	0.011766	0.002134
Var 10	0.643501	0.108702	0.011583	0.036379	0.003159
Var 11	0.818521	0.344442	0.094867	0.115765	0.015196
Var 12	0.552677	0.145806	0.068591	0.022086	0.001106
Var 13	0.564924	0.155450	0.050882	0.065208	0.027474
Var 14	0.653659	0.305242	0.081621	0.111227	0.046947
Var 15	0.831627	0.306905	0.314420	0.229579	0.309960
Var 16	0.625604	0.665831	0.561594	0.668841	0.510211
Var 17	0.667235	0.462457	0.096760	0.157261	0.070836
Var 18	0.520227	0.149005	0.032286	0.050630	0.026280
Var 19	0.651101	0.275662	0.603178	0.201836	0.116651
Var 20	0.133858	0.374319	0.256890	0.315136	0.546528
Var 21	0.628205	0.273965	0.273077	0.263248	0.102797
Var 22	0.965721	0.851609	0.815160	0.788416	0.525790
Var 23	0.729021	0.829613	0.483610	0.714918	0.503814
Var 24	0.821053	0.172470	0.405263	0.265965	0.073684
Var 25	0.093154	0.139731	0.344697	0.220801	0.484849
Total sum	15.669169	8.494446	8.133081	6.817886	5.362597

Source: compiled by authors

The table shows that cluster "A" is twice ahead of the nearest cluster "B" (with a value of 8.494446) in terms of the level of social and economic development of regions. Cluster "A" is almost three times ahead of cluster "D" (the value of integral indicator 5.362597).

There is no need for a region list included in a particular cluster to verify the tested hypothesis. Therefore, Table 3 shows only the distribution of the regions included in the corresponding clusters by institutional groups.

Table 3: Distribution of the clusters of socio-economic development by institutional groups of the regions2 (to simplify the perception of the formulas of clusters "A", "B", "C", "D", "E" are given without quotation marks)

Type of the group of the regions	The formula for social and economic development by years			
	2000	2005	2010	2013
1	2	3	4	5
Hedonistic 1 (16 regions)	3C 12D 1E	1B 3C 12D	3B 4C 9D	3C 11D 2E
Hedonistic 2 (15 regions)	9E 6D	1B 1D 13E	4C 10D E	7D 8E
Balanced 1 (6 regions)	1B 2C 3D	2C 4D	2B 1C 3D	2C 4D
Balanced 2 (6 regions)	3B 3D	3B 2D 1E	5C 1D	3B 3D
Balanced 3 (9 regions)	1B 8D	2B 3D 4E	6C 3D	2B 7D
Ascetic 1 (14 regions)	1A 6B 4C 3D	3A 5B 3C 2D 1E	3A 2B 7C 2D	3A 4B 3C 4D
Ascetic 2 (13 regions)	4B 9D	6B 7D	10C 3D	4B 9D

Source: compiled by authors

According to the data presented in Table 3, the most developed regions of cluster "A" are not presented and the regions of cluster "B" are present singly in the groups of hedonic regions. The regions of the most developed clusters are mainly concentrated in the groups of ascetic regions. To be more precise in representation of the interrelationships between institutional and socio-economic parameters, the author makes a quantitative evaluation of the formulae that group them together (3C 12D 1E, etc.) by the proportions of the sums of the average standardized values of the clusters for the corresponding years. The data are presented in Table 4.

Table 4: Quantitative characteristics of the regional clusters of socio-economic development by years

The sum (units) and proportions (unit fractions) of the average standardized values of the indicators by years					
Years	Cluster A	Cluster B	Cluster C	Cluster D	Cluster E
2000	19.841687	9.516991	8.214952	7.006016	5.785843
	1.0	0.48	0.41	0.35	0.29
2005	14.997970	9.369399	8.202069	7.558798	6.744157
	1.0	0.62	0.54	0.50	0.45
2010	15.252108	7.629660	7.229250	6.476007	3.405894
	1.0	0.50	0.47	0.42	0.22
2013	15.669169	8.494446	8.133081	6.817886	5.362597
	1.0	0.54	0.51	0.43	0.34

Source: compiled by authors

Based on the data presented in Table 4, the author estimates the level of social and economic development of the institutional groups of the regions in the corresponding years (Table 5).

[2] Hedonistic regions with high and medium level of production of value added per capita (higher than it is by the institutional characteristics) – hedonistic 1; hedonistic regions with corresponding (low) level of production of added value per capita – hedonistic 2; balanced regions with a high level of production of added value per capita – balanced 1; balanced regions with corresponding (average) level of production of added value per capita – balanced 2; balanced regions with low level of production of added value per capita – balanced 3; ascetic regions with a corresponding (high) level of production of added value per capita – ascetic 1; ascetic regions with low and medium level of production of value added per capita (lower than it is by institutional characteristics) – ascetic 2.

Table 5: Level of socio-economic development by the institutional groups of the regions

Type of the group of the regions	Level of social and economic development by years			
	2000	2005	2010	2013
1	2	3	4	5
Hedonistic 1 (16 regions)	0.3575	0.5150	0.4550	0.4337
Hedonistic 2 (15 regions)	0.3140	0.4647	0.4200	0.3820
Balanced 1 (6 regions)	0.3916	0.5133	0.4550	0.4567
Balanced 2 (6 regions)	0.4150	0.5517	0.4578	0.4850
Balanced 3 (9 regions)	0.3644	0.5544	0.4533	0.4544
Ascetic 1 (14 regions)	0.4564	0.6550	0.5807	0.6007
Ascetic 2 (13 regions)	0.4300	0.5554	0.4584	0.4638

Source: compiled by authors

Based on the data presented in Table 5, the author concludes:

1. Hedonistic regions 1 (with a relatively high level of added value production) had a low level of development at the beginning of the analyzed period, but not the lowest. In the period of high economic conjuncture (2005) the level of their development increased significantly in comparison with the year 2000. However, this process has covered all institutional groups and cannot be regarded as an exceptional feature of this institutional group. This group includes the Republic of Khakassia, the Jewish Autonomous Region, the Amur Region, the Transbaikal Region, the Leningrad Region, the Astrakhan Region, the Omsk Region, the Tomsk Region, the Smolensk Region, the Tver, the Novgorod, the Kamchatka regions, the Komi Republic, the Chukotsky Autonomous District, the Khabarovsk Region and the Irkutsk Region. In the post-crisis period in Russia (2010), the level of socio-economic development of this group decreased. Later in 2013, the low level of development did not actually change.

2. Hedonistic regions 2 (with a low level of production of added value) are characterized by the lowest values of the level of socio-economic development for the set of parameters presented in Table 1. This group includes the Republic of Tuva, Altai, the Republic of Ingushetia, the Republic of Kalmykia and of Dagestan, the Kabardino-Balkar Republic, the Karachay-Cherkess Republic, the Republic of Buryatia, the Republic of Adygea, the Kurgan Region, the Republic of Mari El, the Altai Territory and the Penza Region.

3. A low level of socio-economic development of the both groups of these hedonic regions can confirm the hypothesis of a significant influence of the type of economic behaviour on the level of socio-economic development of the administrative-territorial entities.

4. The three groups of balanced regions have a higher level of socio-economic development than the hedonistic ones at all time points except for 2010, where the differences are insignificant. In fact, the author's hypothesis is confirmed.

5. The ascetic regions with high level of production of added value are sharply distinguished at all time points against the background of other institutional groups. At all time points, the excess is very significant. This group includes the Krasnoyarsk Territory, the Orenburg Region, the Republic of Sakha (Yakutia), the Republic of Tatarstan, the Belgorod Region, the Moscow Region, the Tyumen Region, the Perm Region, the Sverdlovsk Region, the Murmansk, Samara and Lipetsk regions as well as Saint Petersburg and Moscow.

6. The ascetic regions with relatively low level of production of added value at the beginning of the analyzed period (2000) had a level of development substantially higher than the hedonistic and balanced ones. Differences in the level of development from the ascetic regions with a high level of production of added value are not sufficient. This group includes the Kemerovo Region, the Volgograd Region, the Ulyanovsk Region, the Voronezh Region,

the Saratov Region, the Kaliningrad Region, the Nizhny Novgorod Region, the Ryazan Region, the Krasnodar Region, the Tula Region, the Orel Region, the Vladimir Region, the Yaroslavl Region and the Yaroslavl Region.

Later these regions lost their strong positions in social and economic development. Thus, it can be concluded that administrative-territorial entities can lose their positive institutional characteristics. Differentiation in terms of socio-economic development happens both on the basis of initially formed institutional characteristics, and as a result of inadequate conditions for their implementation.

4. Conclusion

The author of the paper does not pretend to make comprehensive theoretical generalizations. The presented results could be the basis for a more detailed theoretical interpretation of the issue that types of economic behavior influence on the level of development of socio-economic systems.

Nevertheless, extensive number of measurements, reflecting the socio-economic and institutional dynamics of Russian regions over a long period, allows the author make several conclusions: all other conditions being equal, regions with a hedonistic type of economic behaviour have weak prospects for socio-economic development; the regions balanced by a combination of signs of hedonistic and ascetic behaviour are very diverse groups with signs of dynamic instability in the parameters of social and economic development; in any case, the level of their development is much lower than the ascetic ones; the administrative-territorial entities with a hedonistic type of economic behavior are the most capable of achieving a high level of social and economic development; conditions ensuring realization of genetically high potential are necessary to maintain a high level of development of active (ascetic) socio-economic systems.

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RUSSIA'S EXPERIENCE AND PARTICIPATION IN THE SOLUTION OF GLOBAL ENVIRONMENTAL PROBLEMS

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Abstract. The environmental problems experienced around the world have become a planetary disaster and requires action and authorisation by the world community. Under United Nations Organization direction, international laws have been formed to protect the environment. These include two main areas: 1. the development of laws to protect specific natural features and rare species of animals; 2. monitoring and supervision of the activities of the state, international corporations and international organisations to protect the environment from pollution and damage. Russia is involved in more than 50 conventions, contracts and UNO environmental agreements. Often, the resolution of environmental problems results in a dilemma of choosing between the improvement of environmental quality and economic development. Each of the countries of the world community makes the choice in the matter. The article analyzes the modern ecological situation in Russia and its negative impact on the health of Russian citizens. It is also presented the results of the forecast of pollution depending on various scenarios of economic development of Russia - pessimistic and optimistic. he article discusses the need for the following areas of development: improving environmental institutional structures and a series of organizational measures, improving the efficiency of the mechanism of payments for negative impact on the environment, the introduction of environmental economic instruments stimulating mechanism and others. Also in the article we analyze the interaction between Russia and EU, US and Canada in solving global environmental issues in the modern world.

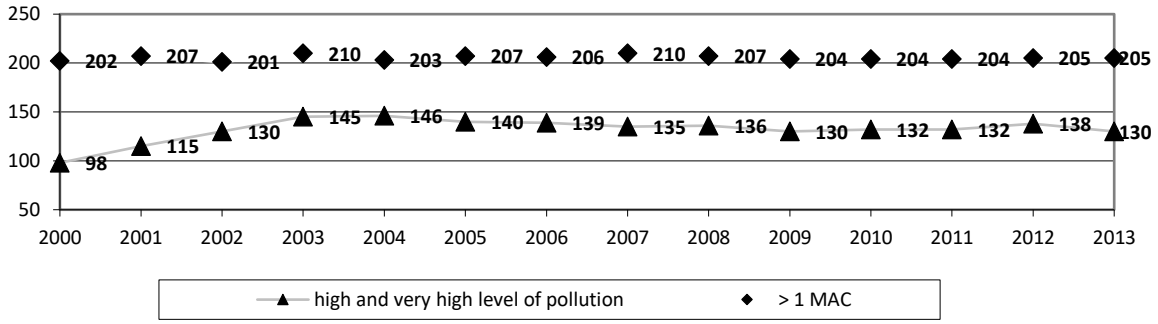
Keywords: ecology, environmental problems, international solutions to environmental problems

JEL Classification: Q57, Q01, F63

1. Introduction

The ecological situation in the Russian Federation and its regions continues to be characterised by a high level of anthropogenic impact on the environment and significant environmental consequences of past economic activities (State Report, 2013; Bobylev et al, 2014; Glazyrina & Faleychik, 2014; Dovgot'ko et al., 2014; Gilmundinov et al., 2011). Currently, there is more than 60 percent of the urban population in 130 cities of the Russian Federation under the influence of high and very high atmospheric air pollution (Figure 1).

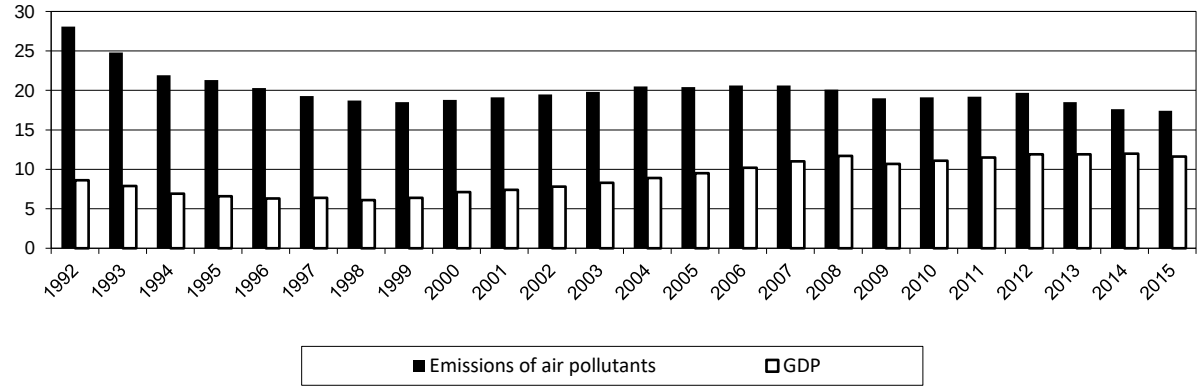
*Figure 1: Number of cities in which: the average annual concentrations of one or more substances exceeded 1 MAC (Maximum Allowable Concentration); the air pollution level is high and very high (IAP *> 7)*[3]



Source: according to the State reports "On the state and protection of the environment of the Russian Federation" for 2001-2016

The close relationship between the dynamics of GDP and the amount of atmospheric emissions continues to be observed (Figure 2), which indicates the lack of modernisation of technological processes in terms of their impact on the environment.

Figure 2: Dynamics of air pollutant emissions by stationary sources (million tons) and GDP (billion rubles, until 1998 - trillion rubles, in 2000 prices)

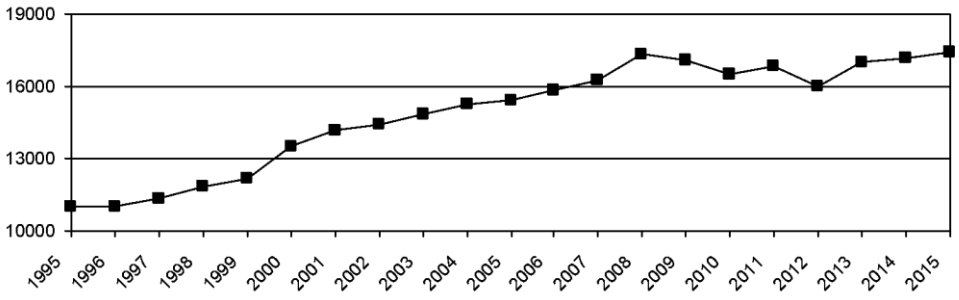


Source: according to the collections of the "Russian Statistical Yearbook" for 2003-2016

The emissions of motor vehicles are increasing (Figure 3). In general, the contribution of motor fuel to the total volume of air pollutants in the country is approaching 45 percent. In large cities with a population of 0.5 to 1.5 million people, the share of pollutants entering the air with vehicle exhaust is 55 to 70 percent, and in very large cities with a population of several million people, more than 85 percent of the total polluting substances.

[3] * IAP is a complex index of atmospheric pollution, taking into account several impurities. The value of IAP is calculated from the values of average annual concentrations. The indicator characterizes the level of chronic, long-term air pollution. In accordance with existing methods of assessment, the level of contamination is considered to be elevated when IAP is 5 to 6, high at IAP from 7 to 13, and very high at IAP equal to or greater than 14.

Figure 3: Dynamics of automobile emissions (thousand tons)

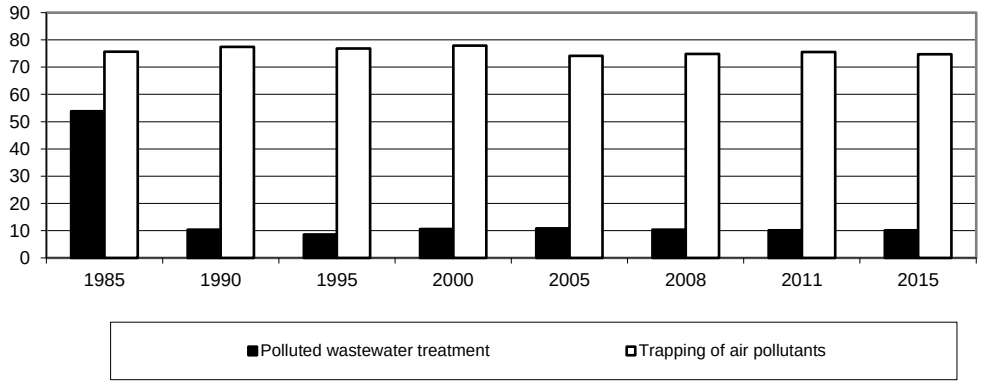


Source: according to the statistical collection "Environmental Protection in the Russian Federation" for 1998-2016

There remains a high volume of sewage discharged into surface water bodies without treatment or insufficiently purified. If in the mid-80s of the last century the share of wastewater treatment to the regulatory level was more than 50%, then at present only 10% is cleared to ecologically satisfactory standards.

The captured share of air pollutants remains unchanged over the past decades (Figure 4).

Figure 4: Polluted wastewater treatment and trapping of air pollutants (as % of total pollution)



Source: according to the statistical collections "Environmental Protection in the Russian Federation" for 1992-2016

The tendency to cause deterioration of the condition of soils and lands is preserved practically in all regions. The amount of waste is increasing and is not being recycled. Of the total volume of solid municipal waste generated, no more than 5% of the waste is processed, the rest is placed on official landfills or unauthorised landfills. In general, the country has accumulated about 40 billion tons of solid municipal waste, the decomposition of which under the influence of natural factors leads to pollution of air, soil and groundwater, as the conditions of storage and disposal of waste do not meet the requirements of environmental safety.

In general, for the aggregate of all natural resources, an unfavorable ecological situation is typical for 15 percent of the territory of Russia. Even a preliminary assessment indicates the existence of 340 particularly large sites of past environmental damage caused by the long-term operation of mining, electric power, chemical, metallurgical, oil and refining industries and having a significant negative impact on the surrounding areas, including natural objects and urban areas.

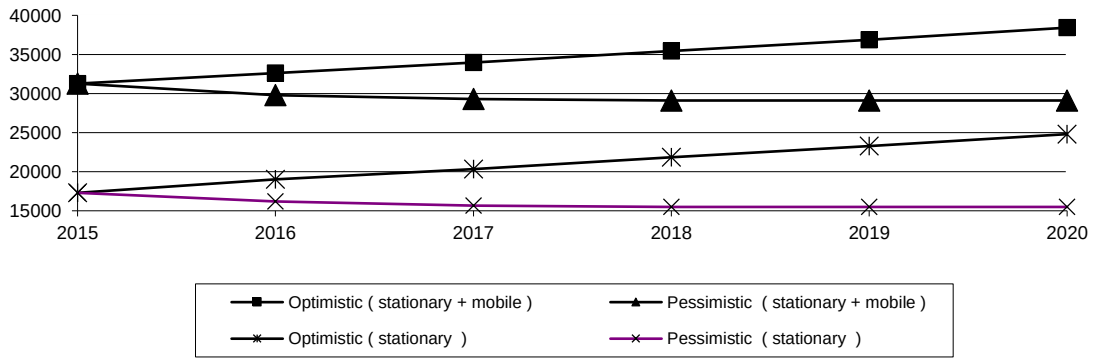
2. Ecological situation in Russia: forecast for further development

Employees in the sector of interbranch research of the national economy of the Institute of Economics and Industrial Engineering of the Siberian Branch of the Russian Academy of Sciences made a forecast of pollutant emissions into the atmosphere by 2020 using a dynamic interindustry model (DIM) with an environmental block. This tool is a model of the Leontief type (Johnson, 1985; Mashunin & Mashunin, 2014), but unlike most of the similar models predicting the volume of atmospheric emissions using specific emission factors, this tool models both the sectoral volumes of pollutant formation and the amount of pollution captured in relation to the costs of protecting the atmospheric air, and, accordingly, as the difference between the pollution produced in the process of production and that of captured atmospheric pollution. Thus, the advantage of this model is the possibility of setting the following tasks: by setting exogenous variables for the volumes of environmental costs, forecasting the volumes of emissions of pollutants into the atmosphere; and vice versa: by setting a certain level of emissions, to estimate the costs of catching pollutants (Peters at al., 2011; Varvarigos & Dimitrios, 2014). A more detailed description of the model is presented in the author's article (Tagaeva, 2011). Within the framework of the task of the first case, a forecast was carried out for several scenarios in the economic development of the Russian Federation. The following theories were based on two of them, both pessimistic and optimistic which have the following hypotheses.

The optimistic option was built on the assumption of strengthening the real ruble exchange rate and rising oil prices, starting from the end of 2016, reviving the investment policy, successful implementation of the import substitution policy, and the proper application of monetary and fiscal policy instruments. The pessimistic option reproduced the continuation of negative trends in the economic development of 2014-2015.

Predictive calculations were carried out under the assumption of the stability of the coefficients of formation of atmospheric pollutants per unit of output of the industry's gross output and the costs of capturing atmospheric pollution. An analysis of the environmental situation in previous years has led to the conclusion that these indicators, with weak innovative activity of enterprises and insufficient control over the state of the environment by the Government, can not significantly change during the 5-year period. A hypothesis was also adopted to maintain the same level of automobile emissions as was measured in 2015 in all forecast scenarios (Baranov et al., 2014). In Fig. 5, one can see the forecast dynamics of emissions of air pollutants by stationary and mobile sources in two scenarios of the economic development of the Russian Federation.

Figure 5: Forecast emissions of atmospheric pollutants by stationary and mobile sources (thousands of tons).



Source: results of forecast calculations for DIM

Thus, according to the results of the forecast calculations, it is clear that the most pessimistic variant of economic development is the most favorable from the point of view of influence on the environment: by 2020, in the optimistic scenario, the emissions of air pollutants will increase by 20.8% and according to the pessimistic scenario it will only be reduced by 4.4%. The growth of atmospheric emissions in the first scenario is due to the positive production dynamics in the most polluting sectors of the economy: the fuel and energy sector, ferrous and non-ferrous metallurgy, chemistry and petrochemistry, the construction industry, the pulp and paper industry. If this forecast scenario is implemented, further increase of the pollution load on the environment is to be expected (Ghosh at al., 2014). Thus, the state will need increased attention to the development and implementation of measures to improve the environmental policy.

3. Measures to improve the state policy in the field of ecology

In order to improve the environmental policy, a wide range of specialists in the field of environmental economics must implement the following directions:

1) It is necessary to improve institutional environmental structures as the ecologization of the economy is impossible under the established system of environmental management bodies (Dovgot'ko, 2014, Evstratov et al., 2016).

2) It is advisable to carry out organisational activities, such as the restoration of the function of environmental assessment and environmental expertise, which has now lost its importance and has become a formally functioning institution. Also, within the framework of organisational processes, it is necessary to abandon the residual principle of financing environmental protection activities by resuming the activities of the Federal and Regional Environmental Funds, entrusting them with the functions of purposeful use of environmental payments accumulated in these funds; increase the number of federal targeted programs of nature protection and their financing from the budget; increase the effectiveness of the system of environmental education and stimulate scientific activity in the field of solving environmental problems (Gilmundinov et al, 2011).

3) It is necessary to improve the mechanism of payments for the negative impact on the environment. In developed countries, the amount of collected environmental payments is on average more than 1% of GDP (in Denmark, the share of environmental taxes in total tax revenues is 7.3%, in GDP - 3.65%, in Finland - 5.40 and 2.47 in the Netherlands - 6.12 and 2.94%, in Norway - 10.75 and 4.92%, in Sweden - 6.34 and 3.17%, in Russia - 0.1 and 0.05% respectively), the standards for payment for pollution are 10-100 times higher than Russian ones for different ingredients. The rates of Russian environmental payments are about 10% of those in Kazakhstan, Belarus, Moldova, Georgia, and about 2% of the rates in most European countries.

Many environmental economists recognise the need to raise basic environmental payment rates by 10 or more times [Wiedmann & Barrett, 2013; Vatn, 1998; Ryumin, 2009), but there are also those who object to this measure, motivating it by reducing the competitiveness of polluting enterprises. Of course, the improvement of the economic nature protection mechanism should take place in a complex interaction with the improvement of the entire tax system. For example, according to the calculations of specialists, by increasing taxes on environmental issues, the income tax rate can be reduced to 11% (Evstratov at al., 2016). The increase in the amount of payments can be implemented in stages, their collection is carried out according to the principle of "deferred penalty", so as to limit excessive economic

pressure on enterprises (Polzin at al., 2010). Thus, it is proposed to reorient the tax policy to address environmental problems with a general reduction in direct taxes (Wang at al., 2015).

4) In order to reduce the tax burden that will inevitably arise as a result of higher environmental payment rates, it is important to introduce the practice of providing financial incentives for eco-innovation processes (offsetting environmental payments in the amount of environmental costs incurred, granting tax benefits and breaks, differentiating tax rates and their procyclical nature) implementation of best available technologies, non-traditional types of energy, use of secondary resources and recycling, and e) when implementing other effective measures for environmental protection (Wang et al., 2015; Binz & Truffer, 2017).

4. International experience in solving environmental problems

In developed countries, accelerated depreciation of fixed assets for nature protection purposes is actively used: for the treatment equipment in different countries, the depreciation period is from two to five years. For example, in the US, cleaning equipment is written off after 5 years, in Canada, after 2 years. This measure is also an effective tool in the economic nature protection mechanism.

In Russia, many stimulating instruments within the economic nature protection mechanism and widely used in practice in developed countries, have not yet been applied. Such innovative tools include, for example, trade in quotas and emission certificates, creation of banks and stock exchanges for pollution rights, and others. Trade in rights for pollution is known in the theory of ecological economics for more than thirty years, and in practice - about twenty years. Currently, it is actively used in the US, Japan, the countries of the European Union. The idea was first realised in the USA in the early 1990s. The program for controlling acid rain provided polluting enterprises with the opportunity to sell state-imposed quotas for SO_2 and NO_2 emissions. By the early 2000s, the US developed a developed market of quotas for this type of emissions. Using this tool has significantly reduced emissions of sulfur dioxide. The service of quota trading is carried out by the largest exchanges of the country. In some states, the "bubble" principle is used in the trading of quotas, an emission control strategy according to which several pollution sources located on one site appear to be placed in the same volume. Maximum allowable emissions are set for the whole region, and the enterprises located in its territory can jointly find the most favorable way for them to ensure compliance with the total amount of the release (Coccia, 2017). Enterprises that are authorised to apply this principle can reduce the release of this pollutant on those sources where it is cheaper, saving money while maintaining the quality of atmospheric air or even reducing the level of total emissions. The bubble principle creates an opportunity for trade in pollution rights at the regional level (Markard & Kern, 2016; Markard et al, 2016).

It is necessary to practically introduce and widely disseminate, elements of environmental management which exist legally, but have a symbolic nature, such as environmental auditing, environmental insurance, environmental certification, flexible pricing of environmental products, including a system of security deposits.

5. Conclusion

Incentives for the implementation of environmental protection can not be the exclusive economic measures, especially at the stage of formation of effective environmental policy. Over the past decade, the world's environmental and economic science and practice are

actively developing approaches that involve combining both information-ideological, administrative, and economic instruments of environmental policy. It seems useful to use foreign experience in order to organise the optimal forms of such a combination (Raa & Shestalova, 2015).

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THE GLOBALIZATION OF B2C E-COMMERCE

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Abstract. The digital revolution and especially pervasive use of the Internet is often seen as a powerful stimulus for internationalization and mainly globalization of all aspects of economy, including retail (business-to-consumer - B2C) e-commerce. However, the ICTs generate also new challenges facing businesses and customers. The existing studies have pointed out that cross-border e-commerce has not been internationally widespread and global online trade is not the norm but rather the exception. Following the recent increase in the growth pace of cross-border transactions and results of previous research, this study addresses the question of whether intrinsically global e-commerce but, in fact, seriously affected by many barriers, could in reality be global. The aim of this paper is to investigate the possibilities of e-commerce globalization by bringing together the findings of different research subjects: relations between globalization and e-commerce diffusion, determinants of strictly B2C e-commerce globalizations and foreign expansion strategies for pure digital e-commerce players. The methodology includes desk research and analysis. The main result indicates that intrinsic barriers to B2C e-commerce global expansion, in particular, "home bias" may be overcame and thus the globalization potential of B2C e-commerce can be fully realized. The most successful way appears the implementation of web globalization strategy. It gives the possibilities not to remove but to leap over those impediments.

Keywords: Globalization, B2C E-commerce, Cross-border E-commerce, Internationalization, Foreign Expansion Strategy

JEL Classification: F10, O33, F40, F23

1. Introduction

Online market is borderless by definition because the internet-based technology used to run business in the virtual space is a true global system. However, in fact doing business is not only a matter of technology. It is still made up of human beings and relations. The mash-up of ICT and traditional factors unleashed the business creativity resulted in a vast range of new, cutting-edge e-business models. The use of ICT in trade changed the nature of information sharing, maintaining relations and conducting transactions.

The e-commerce (electronic commerce, e-trade, online trade) had already in 1992 been announced as being international due to electronic data exchange (EDI) which enabled information movement inherently involved in trade (Ritter, 1992). The next stage of ICT development and widespread adoption of the Internet by business sparked profound enthusiasm for the potential of these new technologies in reduction of many barriers and improvements in business performance. One of the most citied claim of those times was the "death of distance" heralded by Cairncross (1995). The particular attention was paid to the impact of ICT adoption on reduction of transactional costs, including better and cheaper

access to the information, facilitation of cooperation among firms (decrease in coordination costs), consumers benefits from reach global choice provided by network and competitive prices (Wigand & Benjamin, 1995; Mann at al., 2000). At the very beginning of the 21st century e-commerce was seen as an alternative global distribution system with unprecedented growth rate and potential to fast change the existing business boundaries of the world (Javalgi & Ramsey, 2001).

However, there was still initial period of commercial implementation of ICT which can be compared with the first phase of Gartner`s hype cycle (Fenn et al., 2013) when the effects of new technology are just overestimated. There was sometimes simply assumed that if the business is carried out online and the network is global marketplace (websites are accessible in other countries), so companies automatically reach markets and customers around the world and finally cross-border trade has been the norm from now on. As it was found later, the globalization of e-commerce is not so obvious.

E-commerce is an interesting phenomenon since it can take many forms and be used for different purposes. There are three general roles which e-commerce can play in an overall business strategy. The first, when e-commerce is used as a marketing tool, mainly to build brand awareness or reinforce image, generate demand or as a product information provider for bricks-and-mortar stores. Xue et al. (2016) point at cross-border B2B e-commerce as a conceivable major marketing channel of traditional (offline) foreign trade enterprises. Secondly, the technology enabled e-commerce currently to be a survey tool, testing potential demand, price sensitivity, gathering information about consumer preferences and examining the overall picture of a market for further expansion. There is additional rather than sole function of the e-commerce. The third and the basic aim of e-trade is to serve as a sales channel, especially to reach foreign customers (e.g. individuals, businesses, governments) and provide them relevant information as to result in a contract. It follows from the above that e-commerce can be a pure digital play or be complement to the traditional business (click-and-mortar business), can enable transactions in relations B2B, B2C, B2G and others. Each of those forms of e-commerce has its own specific nature and it is reasonable to analyze them separately.

The focus of this paper is on e-commerce as a pure retail (B2C) online export channel. The B2C cross-border transactions constitute a brand new form of international trade. The initial expectations related to globalization potential of e-commerce have then been damped as a result of studies indicating the limitations of global diffusion of e-commerce. The surveys also point out that cross-border e-commerce has not been so widespread and global online trade is not the norm but rather the exception. However, the growth pace of cross-border transactions and e-customers buying from foreign vendors over recent years have shown that globalization of e-commerce is under way. Following the nature of ICT, results of previous research and development trends of retail e-trade, the paper asks whether intrinsically global e-commerce but, in fact, seriously affected by many barierrs could in reality be global. The aim of this paper is to investigate the possibilities of e-commerce globalization by bringing together the findings of different research subjects: relations between globalization and e-commerce diffusion, determinants of strictly B2C e-commerce globalizations and foreign expansion strategies for pure digital e-commerce players. The used methodology includes desk research and analysis.

2. Literature review on the relationships between globalization and e-commerce

The globalization issues related to e-commerce have often been addressed in the literature in the context of their interdependence. Globalization has impact on e-commerce worldwide diffusion and e-commerce diffusion fosters globalization. However globalization of e-commerce is somewhat differentiated according to its type and can be questionable.

One of the first studies on the real dimension of e-commerce was provided by Steinfield & Klein (1999). They remarked that e-commerce is still influenced by social, political, cultural and other factors thus its prevailing dimension is local or regional rather than global. However, in this study e-commerce was strongly linked with physical presence of firms. In conclusions they put down interesting question: "is it possible for e-commerce business to have meaningful local intent, but global reach?", but it was left without a response. Hence, it should be look elsewhere for the answer.

Another early study (Globerman et al., 2001) gives a more in-depth insights into e-commerce impact on globalization of specific industries. E-commerce is seen here as a driver of an expansion on foreign markets and increase in competition. The key conclusions indicate that the wholesale firms (B2B) are more globalized than retailers (B2C). The huge globalization potential in B2C e-commerce is counterbalanced by the advantages of localization due to heterogeneity of consumers.

Similar results to the above are reported by Kraemer et al. (2005). Their study, based on survey in ten very differnt countries, clearly confirms that the globalization of firms is exactly what diversifies the e-commerce adoption. Assuming that the more global companies the more engaged in B2B transactions and the more local firms the more concentrated on B2C relations, it follows then that B2C e-commerce is, in principle, less globalized (is simply local or multidomestic at the most), but B2B online trade is highly globalized.

Summarizing, it should be highligted that the literature provide some explanation of the mutual relationships between globalization and e-commerce diffusion as well indicate that B2B and B2C e-commerce have quite different nature as regards their potentials for going global. The finding that globalization of B2C e-commerce is intrinsically hampered has implications for further research in this area. Hence, the next questions should be: what hinders and drives B2C e-commerce globalization; how should the limitations be removed or what could be done to boost B2C e-commerce global expansion.

3. Key factors influencing globalization of B2C e-commerce empirically proven

Many researches and discussions deal extensively with determinants of e-commerce developments and its worldwide diffusion. The special focus is on the impediments of cross-border e-commerce. Additional issue in these considerations includes comparison the level of barriers for globalization between e-commerce and traditional trade.

Literature on the subject of barriers for e-commerce internationalization is currently relatively extensive. Many references are made to the distance as it was first identified as one of the main trade obstacle and subsequently announced its death as a result of digital revolution (Cairncross, 1995). Besides many different types of obstacles to trade internationally arising from differences in institutional (man-made) factors, the most natural

and inherent one is the distance. However, the distance may has many meanings: geographical, cultural, political and others. All these dimensions can entail strict barriers to e-commerce globalization. So, in this review the main focus has been on the findings of empirical studies based on the gravity equation concerning primarily distance effect, but also other issues. They are listed in Tab. 1. There was collected research regarding B2C e-commerce only. All of them are based on an unique dataset as there is not reliable data at the macroeconomic level.

Table 1: Empirical studies on the barriers for globalization of B2C e-commerce based on gravity equations

Author	Purpose	Sample	Main results and findings
Hortaçsu et al., 2009	Understand the impact of physical distance on internet trade	Transactions data from two auction platforms: eBay (the US intra-national trade, period between February and May 2004) and MercadoLibre (Latin America, August 2003 to July 2004)	- Distance has a negative effect on the online trade on eBay (trade falls 10% each time the distance doubles) but much smaller than has been observed in offline trade - The same-country distance effect is stronger by six times than the same-province effect on MercadoLibre - Exist strong "home bias" effect towards trading with counterparties located in the same state (at state level) as well the same city (at city level) in online trade
Gomez-Herrera et al., 2014	Investigate potential sources of changes in online trade costs to answer the question whether the potential for cross-border transactions is higher in e-commerce than in offline trade	Data set of cross-border e-commerce in goods obtained from an general single online (CAVI) consumer survey in the 27 EU Member States (intra-EU trade), conducted between December 2010 and February 2011	- Geographical distance matters far less online than offline trade - Fourfold increase in the importance of language in online trade - Shipping costs in online trade are unrelated to distance - Online payments systems have significant impact on the cross-border e-commerce potential - "Home bias" is similar in online and offline trade (consumers are about 16 times more likely to buy a product on the home market than on cross-border)
Lendle et al., 2016	Compare the effect of geographic distance on eBay and total international trade flows	Data set of eBay cross-border transactions (61 countries, 40 product categories, period 2004-2009), the same set of countries and goods for eBay and total trade	- The distance effect is on average 65% smaller on eBay than on total trade flows
Kim et al., 2017	Gain insight into the main drivers of cross-border demand and improve understanding of the time and cost dimensions of distance in cross-border e-commerce	Case study of worldwide operating consumer electronics manufacturer located in the Netherlands which provides cross-border e-commerce flows to customers in 721 regions in 5 EU Member States (circa 68 thousands transactions), during period from September 2013 to October 2015	- Distance is important in e-commerce (overall e-demand elasticity with respect to geographical distance is –0.4) - Delivery cost and delivery time dimensions of distance negatively affect demand for cross-border e-commerce

Source: authors' own compilation

The conclusions of referenced studies are generally consistent, although there are some differences in particular numbers, which is normal when varied datasets are used for calculations. They all confirmed that distance still matter, but has lesser impact on B2C e-commerce than traditional trade. This decrease, however, is accompanied by an increase of importance of other factors negatively affecting cross-border online trade. The language appears now as one of the most crucial barrier. Other identified impediments include, for example, payment systems, trust or shipping cost. It may be surprising, that the last one are not related to distance (Gomez-Herrera et al., 2014). The ups and downs of the importance of individual factors influencing globalization of B2C e-commerce compensate each other, as it can be derived from identified strong "home bias" effect similar to offline trade. In other words, ICT used in e-commerce are unable to remove the existing differences among countries and peoples. The costs of transactions are dependent on many factors, not only physical distance and real-time, virtually costless communication, but without face-to-face interaction, generates only shifts in the kind of the most influential barriers.

The above findings explain to a large extent why globalization of B2C e-commerce is intrinsically hampered and suggest that potential for global expansion of B2C online trade is no greater and no less but the same as for traditional trade. However, the exploitation of this potential may be more difficult for B2C e-commerce enterprises than traditional brick-and-mortar companies operating in the offline trade. So, the next section deals with the possible ways to overcome existing barriers to B2C e-commerce global expansion. These ways are determined by strategies for international expansion which can be seen as drivers of e-commerce globalization.

4. Foreign expansion strategies of B2C e-commerce

The key existing barriers to cross-border expansion of online trade, best expressed by strong „home bias" effect, cannot be eliminate by the technology or any other means or measures, so the right way to overcome them might be to leap over these barriers. The international expansion of businesses always requires the selection and implementation of market entry strategy. This strategy should be well-tailored to deal with difficulties of access to local markets, but also depends on resources and possibilities of the firm. Taking into account only pure digital e-commerce players, some strategies for expanding abroad can be found. They differ according to levels of investment and risk, strategic goals, methods of shopping by customers etc.

The characteristics of main strategies for e-commerce international expansion are presented in Tab. 2. They are ranked according to their complexity and even may be viewed as subsequent stages in the internationalization process of e-commerce. However, they are not dependent on one another and typically are selected according to the specific situation and needs.

Table 2: Main foreign expansion strategies for B2C e-commerce pure players

Strategy	Characteristic	Recommendations
Foreign (especially English) language e-commerce website located in own country (domestic or international URL)	Setting up stand-alone website available in multiple language versions (usually at least in English) and offering products to the world. Simple, fast and cheap form of foreign expansion in e-commerce based only on translation.	Not recommended as a sales channel in cross-border e-commerce, but acceptable in the special cases, when products offered for sale are particularly attractive for foreign buyers and not easily available online and offline for them on domestic

		market (e.g. novelties or special brands or models of products designated for selected only markets), or when demand for given products is low or uncertain on foreign markets (e.g. spare parts, hobby products).
Sales on foreign established marketplace (intermediary)	Fast, low operational risk, low resources-intensive, options for outsourcing some tasks (e.g. marketing, shipping), but low control over the business and brand.	Convenient in expansion on emerging markers.
Web globalization - own websites directed to foreign markets (local market URL)	Consists of two processes: first – internationalization (I18n) and second - localization (L10n) of website. I18n involves (re)building a site which code base (functionality) will make it possible to be easily adapted for different markets (it means technical preparation). L10n is an adaptation of site (its text, content, graphics, layout etc.) to local market requirements (linguistic, cultural, technical etc.). Relatively fast, medium resource-intensive for one website, but costly for multiple sites, full control and elasticity, gives a competitive advantage over abroad or internationally based players.	The most effective strategy for building strong, long-term presence on target market. Imperative when international expansion is cornerstone of e-commerce activity and there are no objective limitations (e.g. legal, administrative).

Source: authors' own selection and summary inspired by and based on (Yunker, 2002; Singh, 2012; Quinn et al., 2014; Kim et al., 2017)

The all listed in Tab. 2 strategies enables fast foreign expansion, what is common characteristic of e-commerce as pure digital play. The firts strategy needs only linguistic translations of website content and doesn`t make it possible to overcome other key barriers to B2C e-commerce globalization. The second one means e-commerce intermediation and virtually is beyond the retailer`s control, hence it signifies dependence on external factors and each single case should be considered alone. The last one is the most interesting strategy from the point of view of the possibilities of e-commerce globalization and thus leaping over the barriers/borders. The broad description of web globalization strategy is provided by Yunker (2002) and Singh (2012).

When considering how to reduce „home bias“ as the most important obstacle to access foreign market, it can be noted that the web globalization strategy is suitable for this. As a result of its implementation, the website is designed in such a way that cannot be distinguished from indigenous e-commerce websites. In this case, trust is build on the indegenous factors. For this strategy would perhaps be more appropriate name „web glocalization“. Moreover, it may be found a broader approach under which the global strategy for B2C e-commerce means strong adaptation to local environment and global coordination and integration activity at the same time (Alhor et al., 2010).

5. Conclusion

The very early expectations created by digital revolution for unlimited global diffusion of e-commerce were not realized. It quickly became known that there are many barriers to e-commerce globalization. It should be also noted that e-commerce is not homogenous

phenomenon in the contemporary economy. The aims and types of e-commerce activity differ widely. The B2C e-commerce as pure online export channel is a brand new form of international trade. The existing studies have explained in large extent the problems related to globalization of B2C e-commerce. However, the interest in this regard has been changing over the time and may be divided into three stages. The first stage is dominated by enthusiasm and is more influenced by anecdotal evidence than academic research. In the second stage, the initial undue optimism was verified through examinations of the real dimension of e-commerce diffusion, including differentiation between B2B and B2C e-commerce players. In the next stage investigations have focused on determinants, especially impediments and other issues of e-commerce globalization.

There is strong evidence that globalization of B2C e-commerce is intrinsically hampered and the "normal" dimension for these businesses is local. The potential for global expansion of B2C online trade is virtually the same as for traditional trade, mostly due to „home bias" effect. However these intrinsic barriers to B2C e-commerce global expansion may be overcame and thus the globalization potential of B2C e-commerce can be fully realized. The most successful way appears the implementation of web globalization strategy. It gives the possibilities to leap over existing impediments to B2C e-commerce global diffusion. The vast scientific research in this area are needed to gain insight into the real effects of the implementtion of web globalization strategy and more extensive global strategy for B2C e-commerce. Additionally, constant technological progress should be investigeted in relation to possibities of globalization of e-commerce.

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DEFLATION AS A PART OF GLOBAL ECONOMIC SYSTEM

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Abstract. We live in a global economic system. All the economic subjects participate in this international market. Thanks to Internet customers (households) can buy products worldwide. The same applies for the companies. They can supply and sale their products not only in their domestic country but also in many foreign countries. The customers top criterion is often low price. So the competitiveness is often about price decreasing. Low prices implies decreasing price level and it causes deflation. Deflation was not common part of economics during several last decades. The central banks are alarmed by this „new" situation. They try to fight with this new situation by standard monetary policy instruments. But it is not very effective fight. We have to ask: Why the price level decrease. Is the reason at the side of competitiveness (companies price strategies) or is the worldwide production too high (AS moves right) or is it the problem of low consumers spendings (for example thanks to unemployement, AD moves left)? Than we have to answer: Is it necessary to raise price level each time? Is deflation realy so dangerous? Or it is the nature evolution of world economic system and we have to adapt to this new situation and not protect old orders?

Keywords: competitiveness, deflation, globalization, monetary policy, open economy

JEL Classification: E5, F4, F6

1. Introduction

Současné tendence ve světové ekonomice naznačují, že zažité „pořádky" již nebudou obnoveny. Makroekonomické cíle v podobě preferovaného tempa růstu produktu nebo míry inflace budou muset být pravděpodobně přehodnoceny.

Vyspělé ekonomiky se nyní potýkají s hrozbou deflace. Představuje deflace opravdu hrozbu a je možné pokles cenové hladiny dlouhodobě eliminovat v současné době používanými nástroji měnové politiky?

Žijeme v době, kde se ze světa stalo jedno velké tržiště. Díky odstraňování obchodních bariér, podporám exportu a modernějším dopravním kanálům nakupujeme zboží z celého světa. Jako spotřebitelé přitom nehledíme pouze na kvalitu, ale často především na cenu. Nízká cena hraje v myslích spotřebitelů často prim. Výrobci a distributoři se proto předhánějí, kdo získá větší část trhu právě díky nižší ceně nabízeného zboží.

Na druhé straně stojí nositelé hospodářské politiky se svými zažitými teoriemi o tom, jak by se měly vyvíjet jednotlivé makroekonomické ukazatele. A současné deflační tendence jsou jejich „ideálu" dalece vzdáleny. Přitom některé studie naznačují, že mírné tempo inflace nebo deflace může být v určitých případech ekonomice prospěšné (Wolman, 2011).

Příspěvek se na danou problematiku podívá zejména z pohledu České republiky, jako malé otevřené ekonomiky, která je v globalizovaném světě spíše příjemcem nových pravidel a pořádků než jejich aktivním tvůrcem.

2. Deflace

Deflace (pokles cenové hladiny) není jev, který by se v ekonomikách v předešlých desetiletích objevoval pravidelně a který by byl v rámci ekonomické teorie podrobně popsán. Výjimku tvoří snad jen Japonsko, které se s deflací potýká dlouhodobě. Jde však o specifickou ekonomiku a tamní spotřební chování je odlišné od toho evropského nebo amerického (Fuhrer et al., 2012). Je vymezena jako pokles cenové hladiny a jsou popsány její dopady. Nejsou však popsány situace, jako je ta dnešní – nízké záporné tempo změny cenové hladiny a ekonomický růst.

Podíváme-li se do historie, je deflace spojována s ekonomickou krizí, vysokou nezaměstnaností, dluhovou pastí. Jako hrozbu ji označujeme díky situaci z první poloviny dvacátého století, kdy se naplno projevila v rámci celosvětové hospodářské krize.

V současné době se ale vyspělé ekonomiky s podobnými problémy nepotýkají. Podle údajů Mezinárodního měnového fondu rostly ekonomiky zemí G20 v roce 2016 o 3,16%, v roce 2015 o 3,37% a ještě o rok dříve, v roce 2014 o 3,43% (MMF, 2017).

Současné tendence vývoje cenové hladiny nemůžeme spojovat s ekonomickou krizí. Jde spíše o problematiku globální konkurence, propojenosti ekonomik a odstraňování bariér mezinárodního obchodu, ať už politických (cla a kvóty, embarga) či technických (možnosti získání informací o zboží a jeho objednání).

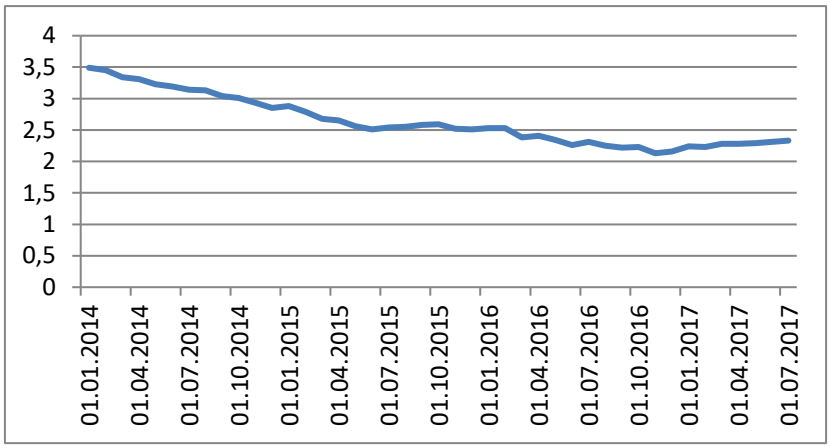
3. Teoretické negativní dopady deflace a jejich praktické dopady

3.1 Dluhová past

Mezi hlavní negativní dopady počítáme dluhovou past, kdy ekonomické subjekty nejsou schopné dostát svým závazkům. Pokles cenové hladiny totiž vede k poklesu nominálních mezd. Podle těchto předpokladů ceny a nominální mzdy klesají, ale nominální závazky domácností např. v podobě splátek hypoték se nemění. (Hannich, 2008). Dochází tedy k poklesu reálných mezd.

Jenže současný hypotéční trh již není tak strnulý jako v minulosti. Banky se snaží svým klientům vyjít vstříc a chápou, že lepší je klientovi splátky snížit nebo upravit, než ho díky splátkám vysokým dostat do situace, kdy přestane splácet úplně. Na trhu s hypotékami navíc panuje poměrně silná konkurence, která ani v době restrikcí hypotéčního trhu ze strany České národní banky „nepřipustila“ (jak ukazuje následující graf Figure 1) významný nárůst úrokových měr.

Figure 1: Úrokové sazby korunových úvěrů poskytnutých domácnostem v ČR na nákup nemovitostí (celkem – bez rozlišení doby fixace úrokové sazby)



Source: ČNB, 2017

Po letech poklesu sice v roce 2017 vidíme mírný nárůst úrokových sazeb, nejedná se ale o nic dramatického, vezmeme-li v potaz, že úrokové sazby z hypoték nemají platnost pouze jeden rok, ale jsou fixovány na delší období. Úroková sazba zachycená v grafu v sobě skrývá jak roční fixace, tak fixace více než desetileté. Podle údajů ČNB je v současné době nejnižší úroková sazba při fixaci na 5-10 let, což značí, že banky v tomto období nepočítají s žádnými dramatickými výkyvy ekonomiky. Díky restrikcím hypotéčního trhu ze strany ČNB bylo původně počítáno s vyšším nárůstem úrokových měr. Konkurenční prostředí v bankovním sektoru ale nedovolilo jejich skokový nárůst ani po zákazu 100% financování nákupu nemovitosti hypotéčním úvěrem.

Navíc, podíváme-li se na současný trh půjček v České republice (a nejen hypoték), neschopnost je splácet není dána klesajícími platy, ale předlužeností velké části domácností, která splácí dluh dluhem a se splácením si hlavu vůbec neláme. V roce 2016 zahájili exekutoři v ČR 680 000 exekucí. Je to sice pokles o desetinu oproti roku 2015, klesá však vymahatelnost exekucí. Souběžně probíhá 4,68 milionu exekucí. Zhruba 85% exekucí je dle exekutorské komory nevymahatelných (Hovorka, 2017).

Problematiku dluhové pasti nelze zlehčovat. Nicméně současná situace ukazuje, že domácnosti nepotřebují deflaci k tomu, aby nebyly schopné splácet své závazky. Aby se do dluhové pasti dostaly, muselo by zároveň s poklesem cenové hladiny dojít i poklesu mezd.

3.2 Odložená spotřeba

Dalším negativním dopadem je odložená spotřeba. Ekonomické subjekty by podle tohoto předpokladu měly spekulovat na další pokles cen – odkládat své nákupy na dobu, kdy bude pořízení dané věci ještě výhodnější. Klesá tak poptávka, produkce, zaměstnanost (Berben & Stockman, 2016).

Ani tento argument nemá v současném světě velkou váhu. Můžeme svoji spotřebu odkládat do nekonečna? Podívejme se na strukturu spotřebního koše v České republice v tabulce 1 (ČSÚ, 2017). Téměř 70% tvoří věci denní spotřeby, jejichž nákup nemůžeme dlouhodobě odkládat a spekulovat na další pokles ceny. Jedná se o potraviny, drogérii, energie, telekomunikační služby, léky a zdravotní pomůcky apod. Odložit nákupy bychom mohli např. u bílého elektra nebo automobilů. Ty ale tvoří výrazně menší část spotřebního

koše. Navíc většina nových aut je nakupována firmami. Za první čtvrtletí roku 2017 nakoupily domácnosti 23% nových automobilů, firmy 77% (Stuchlík, 2017).

Table 1: Struktura spotřebního koše v ČR v roce 2017

spotřební vydání domácností	váha ve spotřebním koši (suma = 1000)
01 Potraviny a nealkoholické nápoje	149,822762
02 Alkoholické nápoje, tabák	96,007677
03 Odívání a obuv	35,930374
04 Bydlení, voda, energie, paliva	280,354952
05 Bytové vybavení, zařízení domácnosti; opravy	57,971658
06 Zdraví	23,074500
07 Doprava	105,006601
08 Pošty a telekomunikace	36,078930
09 Rekreace a kultura	90,377993
10 Vzdělávání	7,782688
11 Stravování a ubytování	48,561261
12 Ostatní zboží a služby	69,030604
celkem	1 000,0

Source: ČSÚ, 2017

Vzhledem k počtu reklamních akcí nejsou často spotřebitelé schopni ani vyčíslit skutečnou cenu produktu nebo služby. Nejsou tedy schopni říci, zda cena dlouhodobě klesá či nikoli. Každý den dostávají do schránky několik letáků s akčními nabídkami, předsezónními, sezónními a posezónními slevami, reklamní letáky upozorňující na výprodeje. Původní cena produktu pak slouží jen jako základ pro výpočet výše slevy. Nejsou to jen tiskoviny, které upozorňují na nízkou cenu. Je to také reklama v rádiu nebo v televizi. Málokterý produkt je nabízen jen s ohledem na svou kvalitu. Předmětem soutěže obchodníků je především nízká cena nabízeného zboží. Až polovina rychloobrátkového zboží je v současné době prodávána v České republice v „akci“. (Klika, 2017)

Nízká cena nemusí být jen důsledkem boje o zákazníka. Jedním z důvodů může být nadprodukce statků ve vyspělém světě (Eichengreen et al., 2017). Výroba ve velkých objemech s sebou nese nižší jednotkové náklady. Díky mezinárodnímu obchodu mohou firmy tyto velké objemy prodat .

3.3 Nezaměstnanost

Nezaměstnanost se v ekonomikách s deflací objevuje jako důsledek snížení koupěschopné poptávky. Pokud lidé nekupují zboží, protože jim na ně nezbývá díky splácení fixních splátek půjček a nižšímu nominálnímu příjmu, není nutné ho tolik vyrábět – snižuje se produkce a roste nezaměstnanost. Ta s sebou nese další náklady v podobě vyšších výplat sociálních dávek, ztráty kvalifikace a pracovních návyků lidí bez práce, nižší výběr daní.

V současném globalizovaném světě na tento problém nemůžeme pohlížet jako na problém jedné země a její koupěschopné poptávky. To, co kupují čeští spotřebitelé, nebylo z velké části vyrobeno v Čechách. Na druhou stranu to, co vyrábějí čeští zaměstnanci, není nezbytně prodáno na domácím trhu.

Abychom deflaci mohli v tomto směru považovat za hrozbu, musely by být vytvořeny indexy, které by se zabývali cenou výhradně domácí produkce a mzdami zaměstnanců, kteří produkují pro domácí trh. Klesá-li cena polského kuřecího masa, má to vliv především na polského výrobce. Samozřejmě s ohledem na konkurenční prostředí se poklesem ceny budou

zabývat i domácí producenti. Pokles mezd bude ale až poslední z realizovaných opatření. Pokud trh nabízí dostatek jiných volných pracovních pozic jako je tomu nyní, nedovolí si zaměstnavatelé příliš nebo vůbec snížit mzdy.

4. Současná řešení deflace

V současné době nositelé hospodářské politiky postupují podle scénáře, který deflaci bezprostředně spojuje s ekonomickou krizí. I teoretické koncepty se zabývají právě touto kombinací (Revenda et al., 2005) a opomíjejí, že by mohla nastat situace odlišná (Antinolfi et al., 2016).

Centrální banka sleduje vývoj cenové hladiny a „bojuje" proti možné deflaci expanzivní monetární politikou. Do ekonomiky „pumpuje" peníze jak ČNB, tak Evropská centrální banka. Buď nakupují dluhopisy, nebo intervenují proti pohybu měnového kurzu. Za vším stojí snaha dotáhnout míru inflace na cíl, který si vytyčily. Jsou ale ona 2% skutečným ideálem? (Branch & Evans, 2017)

Pomineme-li inflační cíl, zbývá nám snaha centrální banky ovlivnit ekonomiku tak, aby její stav odpovídal ustáleným zvyklostem. Preferujeme mírné, ale stabilní tempo růstu HDP, mírnou inflaci, nízkou míru nezaměstnanosti a vyrovnanou bilanci se zahraničím. Některé tyto cíle jsou komplementární, jiné jsou však konfliktní. Ať už tak nebo tak, sledovat je a snažit se je naplnit můžeme jen díky tomu, že je umíme měřit. Protože chceme ukazatele počítat často, nesmí to být časově náročné. Proto pracujeme s reprezentativními vzorky. Metody současné statistiky a ekonometrie jsou sice sofistikované, ale nejsou neomylné.

5. Je deflace skutečně hrozbou?

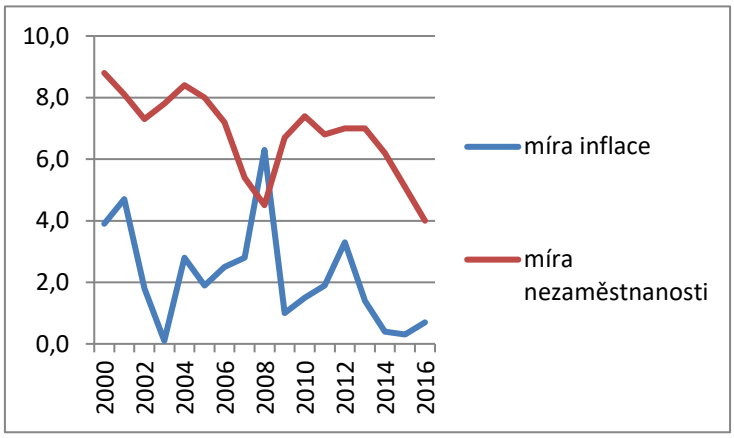
5.1 Současná ekonomická situace

Deflace by byla hrozbou, kdyby byl pokles cen spojen s poklesem zaměstnanosti, jak to popisuje např. Tomáš Holub ve svém článku „Deflace alias obr lidožrout není výmysl ČNB" z roku 2014 (Holub, 2014).

Současná ekonomická situace je ale jiná. Nízké ceny nejsou důsledkem ekonomické krize, ale globální konkurence.

Následující graf (Figure 2) ukazuje vývoj míry inflace a míry nezaměstnanosti v České republice od roku 2000 do roku 2016. Od roku 2014 je v grafu patrná snaha centrální banky o zvýšení tempa růstu cenové hladiny. Hlavním použitým nástrojem byly intervence na devizovém trhu. Tyto intervence nejenže zdražily dovozy, hlavně přispěly ke zvýšení konkurenceschopnosti exportérů na zahraničních trzích. Ti si díky stabilnímu a oslabenému kurzu koruny mohli dovolit expandovat a najímat další zaměstnance. Intervence se tedy v ekonomice promítly nejen na straně inflace, ale i na straně poklesu míry nezaměstnanosti.

Figure 2: Vývoj míry inflace a míry nezaměstnanosti v ČR v letech 2000 - 2016

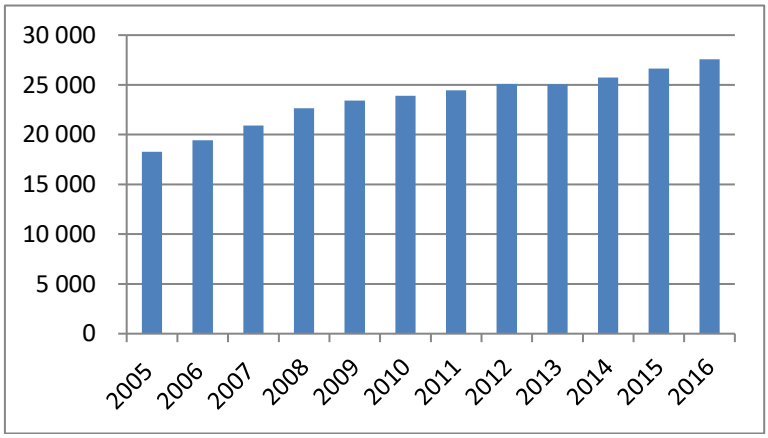


Source: ČSÚ, 2017

Otázkou je, zda tyto intervence byly pro ekonomiku opravdu prospěšné (jedná se o jistou míru protekcionismu a uplatnění principu ožebrač svého souseda) a zda je jejich efekt udržitelný z dlouhodobého hlediska. Vývoj kurzu koruny je značně závislý na spekulačních obchodech s ní.

Argument deflace jako zbytečného strašáka (za současných ekonomických podmínek) můžeme podložit i vývojem průměrné mzdy v České republice (ČSÚ 2017). Od roku 2005 průměrná hrubá měsíční mzda v ČR roste (s výjimkou drobného poklesu v roce 2013).

Figure 3: Průměrná hrubá měsíční mzda zaměstnanců v národním hospodářství v ČR



Source: ČSÚ, 2017

Z pohledu možného poklesu mezd, následného poklesu produkce a zaměstnanosti se v současné době deflace nejeví jako agresivní problém.

5.2 Deformované trhy

V dnešním globalizovaném světě nemůžeme mluvit o fungujících trzích. Tržní prostředí je značně deformováno. Co vyrábět už neurčuje konkurence na straně poptávky, jak se učí studenti prvního ročníku ekonomie, ale dotační systém, pobídky a restrikce. Jak vyrábět už nám neříká konkurence na straně nabídky, ale opět opatření nadnárodních institucí v podobě technologických omezení, kladení důrazu na ekologii a energetickou nenáročnost. Pro koho vyrábět už neurčují trhy výrobních faktorů. Nespotřebovávají pouze ti, co mají na trzích výrobních faktorů co pronajmout – nabídnout, ale i ti, co nic nenabízejí, ale utrácejí sociální dávky a garantované příjmy.

Nicméně ekonomické teorie, které z velké části stále určují směr monetární a fiskální politiky vznikaly v době, kdy svět nebyl globálním tržištěm, a skutečné tržní mechanismy měly šanci se v reálném světě prosadit. Aplikujeme tedy „starou medicínu“ na „nové choroby“. Vždyť až do 70. let 20. století vývoj cenové hladiny odpovídal vývoji produktu. Změna nastala až právě na počátku 70. let s ropnými šoky. Tehdy byl nárůst cenové hladiny spojen s poklesem produkce – poprvé se objevila slumpflace (Revenda, 2011). Pro případný stav poklesu cenové hladiny a ekonomického růstu není termín a ani teoretické řešení dané situace.

6. Conclusion

Ekonomika je stále živý a vyvíjející se mechanismus. Není uzavřená a reaguje na výzvy i hrozby ze zahraničí. Se zahraničím je navíc propojena díky obchodním vztahům, mezinárodnímu pohybu pracovních sil i kapitálu.

Současné nástroje nestačí na udržení ekonomik v zajetých kolejích. Zejména malá otevřená ekonomika jako je například Česká republika není schopna ovlivnit externí vlivy, které působí například na tolik diskutovanou změnu cenové hladiny. Nositelé hospodářské politiky nemohou přímo ovlivnit cenu ropy na světovém trhu (Castro et al., 2016), nemohou ovlivnit cenu práce na zahraničních trzích a nemohou zasahovat do konkurenčního boje nadnárodních korporací v globalizovaném prostředí (Kokores et al., 2017),(Halka & Szafranek, 2016).

Můžeme jen konstatovat, že deflace v globalizovaném světě má a bude mít své místo. Nemusí to být nutně deflace spojená s recesí. Bude to pravděpodobně deflace, která se bude objevovat ve fázích růstu a bude vyvolaná konkurenčním bojem, nadprodukcí a spotřebitelskou poptávkou orientovanou především na cenu.

Z dlouhodobého hlediska trhy s deflací nepočítají a možná právě díky nastavení parametrů hospodářské politiky jsou pro inflačně orientovány (Fleckenstein et al., 2017).

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IMPACT OF GLOBALIZATION ON DECISION-MAKING BY PRODUCERS AND CONSUMERS OF ECONOMIC GOODS

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Abstract. Increased interest in specific aspects of cross-cultural variations in behavior of consumers coming from different cultures is currently observed both among scholars and international/global companies engaged in marketing activity on the global market. Data on variations in behavior of consumers from different cultures serves as the basis for development of either differentiated or undifferentiated (standardized) marketing strategies by international companies. This article reveals the nature of such phenomena as interpenetration, deterritorialization, contamination, pluralism and hybridization of culture that influence the behavior of consumers on the global markets. It also exposes the extent of differences or similarities in behavior of consumers from different cultures/countries, identified in the course of the review of 86 international studies of cross-cultural variations in consumer behavior conducted over a 17-year period from 2000 to 2016. The studies, published in the leading international peer-reviewed journals, were selected based on 19 criteria and grouped into three categories: study description, market description and characteristics of culture. In this article the author uses content analysis to systemize approaches to implementation of results of research of cross-cultural variations in consumer behavior in international marketing. The author concludes that while marketing strategy of differentiation currently prevails, the above-mentioned phenomena may cause this pattern to significantly change in the future.

Keywords: consumer behavior, cross-cultural variations, global market

JEL Classification: M1, M2, M3

1. Introduction

In conditions of globalization marketing management of international/global companies requires valid well-grounded justification of response to the following questions:

- Do consumers from different cultures demonstrate different or similar behavior in the process of decision making on a global market?
- What marketing strategy should dominate in the process of new markets' penetration: standardization or differentiation?

It is also essential for marketing management of international/global companies to recognize the increased influence of such phenomena as cultural interpenetration, deterritorialization, contamination, pluralism and hybridization on behaviour of consumers on global markets. These cultural phenomena directly affect behaviour of consumers from different cultures. Understanding the nature of these phenomena and monitoring cross-cultural

variations in consumer behavior will enable marketing management of international/global companies to take well-grounded decisions on selecting appropriate marketing strategies.

The methodology of this research is based on collection, analysis, processing and interpretation of secondary data from 86 international studies on the issues of impact of cultural phenomena on consumer behavior. The studies, published over a 17-year period from 2000 to 2016 in the leading international peer-reviewed journals, were selected based on 19 criteria and grouped into three categories, according to study description, market description and characteristics of culture. Key research objectives were to systemize approaches to research of consumer behavior variations in cross-cultural domains; determine the extent of variations (differences) in consumer behavior patterns, identify issues of practical marketing application in cross-cultural research of variations in consumer behavior; and propose areas for future research. Content analysis was used to analyse collected data.

2. Body of paper

The process of globalization as a universal multifaceted process of cultural, ideological and economic integration of states determines growing mutual influence of countries and cultures around the world.

Development of the global market accelerates processes of mutual influence of cultures, manifesting itself in a changing behavior of individuals as a result of such cultural phenomena as interpenetration of cultures, pluralism, hybridization and others.

Interpenetration of cultures is a distinct type of direct relations and connections, formed by at least two cultures and a range of effects and interdependent adjustments evolving in the process of these relations (Jovanovic, 2016). Changes in conditions, quality, areas of activity, values of a given culture, evolvement of new forms of cultural activity, moral guidelines and aspects of individuals' lifestyle have fundamental importance in the processes of interaction of cultures.

Exchange of economic developments, inter-state relations, political, economic, trade and legal relations are the most popular forms of interaction and interpenetration of cultures (Furs, 2000). Interaction of cultures may impact changes in language, everyday artistic or religious practices and customs of the interacting communities.

Results of interaction and interpenetration of cultures can be, however, controversial. In the process of interaction of cultures one culture may stagnate due to the influence of the other, gradually diffusing or vanishing without a trace (Furs, 2000). Interaction between the cultures that do not have a vast gap in susceptibility to dynamic change and a level of internal differentiation may be responsible for even more complex consequences and results. Popularization of user-friendly items, modern technology, up-to-date criteria of assessment of individuals' day-to-day behavior, adopted from a foreign culture, cannot be declared either positive or negative until there is evidence of the exact impact of certain adopted aspects on the in-depth qualities of life of a given nation (Jovanovic, 2016; Furs, 2000). Each culture possesses a system of protective mechanisms, capable of safeguarding it from excessively aggressive foreign impact: these are the mechanisms of preservation and cultivation of the culture's background, its foundation and traditions, as well as the mechanism of shaping individuals' cultural identity and others.

Hybridization of cultures as one of the cultural phenomena leads to transfusion, interpenetration and redesign of elements of different cultures in a certain social context. The

term is frequently used to define cultural aspects of the process of globalization, which, however, does not necessarily lead to total standardization, or "westernization" and "Americanization" processes, as it is frequently described (Tausch, 2016). Local cultures appear to be capable of customization of seemingly universal brands (for instance, Barbie doll in Japan or McDonald's menu in France).

The concept of cultural pluralism suggests that the right for an unobstructed development of cultures and subcultures, including cultures of ethnic minorities, and the recognition of the entitlement of all nations and nationalities to this right, are part of the national identity and are formalized by regulatory acts and statutes. Cultural pluralism is viewed as a preferable structural principle of a tolerant multicultural society (Furs, 2000). Multicultural society is shaped by both market forces and cultural policy of the state. However, culture may lose its integral structure which is the basis for society's integration and ethnic identity.

It is noteworthy that such cultural phenomena as deterritorialization, an occurrence when subjects of culture leave the territory, and contamination, an occurrence in the process of which a culture is "contaminated," facilitate the loss of ethnic identity of the subjects of culture.

Contemporary scholars are alarming the global community of the risk of cultural unification, or so called "McDonaldization" affecting the entire planet as a result of globalization processes. Such "blending, averaging- and evening-out" of culture lead to extinction of the hubs of cultural authenticity and, therefore, deprive the humanity of the essential sources of development (Jovanovic, 2016). The «own» - «foreign» boundaries are being erased and uniform standards and symbols (brands) are spreading among various groups.

Global marketing communications and global products introduce alternative styles, patterns, symbols, values and norms of behavior, shaped as elements of alien cultures, into a nation's culture. In the process of assimilation and adoption of foreign elements, the latter replace the traditional elements of culture that seem unappealing, obsolete or out-of-use. Naturally, the process of elimination of differences not only in clothing and food, but also in cultural and behavioral stereotypes, that are commonly imposed by an alien culture, is taking place. Adoption of alien standards alters the "cultural identity" of distinct social groups and society. The society itself disintegrates into a multitude of poorly integrated groups, distinguished by different criteria of identity (Tausch, 2016).

Exposure to other cultural traditions makes its own impact on national and religious foundations of living, induces erosion of traditional local, ethnic and national fundamental principles and makes adjustments to the perception of cultural archetypes which every society is based upon. By uniting individuals into enormous supranational communities with gigantic city-hubs and multimillion markets, information and communication networks urge them to live and consume in line with uniform patterns.

Along with the above-mentioned unidirectional process recent studies point out an apparent backlash, identified in a number of countries and regions, and their focus on traditionalist values (Furs, 2000). This encompasses efforts to retrieve stable and reliable guidelines, and elements of traditional ethnic culture, «cultural heritage» most frequently act as such.

The impact of globalization and corresponding cultural phenomena on decision-making by subjects of global markets was analyzed in the framework of the above-mentioned review of

86 international studies on the issues of cultural differences in consumer behavior. In conditions of a global market the issues of choice of either standardized or differentiated marketing strategies by transnational companies are directly related to understanding of the extent of differences existing in behavior of consumers from different cultures.

In analyzed international studies of specific aspects of behavior of consumers with different cultural backgrounds the main research objective was to determine the extent of variations (differences) in consumer behavior patterns. The following cross-cultural variations in consumer behavior were detected (Tab.1.)

Table 1: Identified cultural variations in consumer behavior research

Cross - cultural variations in consumer behavior	Number of studies (%)	Number of studies (%)		
		2000-2004	2005-2009	2010-2016
Dominating cultural differences	36 (42)	4 (27)	14 (56)	8 (39)
Mixed findings: both differences and similarities	30 (35)	5 (33)	9 (36)	16 (35)
Insignificant cultural differences	9 (10)	4 (27)	2 (8)	3 (6)
No specification given	11 (13)	2 (13)	-	9 (20)
Total	86 (100)	15 (100)	25 (100)	46 (100)

1. Dominating cultural differences. Findings in 42 per cent of examined studies point out that cultural background shapes consumer behavior to a greater extent than other factors and there is strong relationship between impact of the cultural factor and measured variables. For example, Godey et al. (2013) found "some strong cross-cultural differences in the perception of luxury" by consumers from six countries. Yeniyurt & Townsend (2003) detected strong association between cultural dimensions and new product acceptance rates. Squires et al. (2001) found that consumers from different countries may have different attitudes to consuming organic food.

2. Mixed findings: both differences and similarities (see Table 1). In 35 per cent of examined studies only partial effect of cultural factors on variables is detected. Researchers found both differences and similarities in consumer behavior patterns across cultures/countries (Chan et al., 2007; Kim et al., 2013; Tsai & Men 2014). Kim et al., (2013¸ p 688) in a study of cross-cultural differences in online retailer reputation and consumer response concluded that although "the overall mechanism underlying decision making process is similar for the two countries" [USA and South Korea], "differences in the relative importance of factors determining consumers' cognitive and emotional reactions" were found. Chan et al. (2007) demonstrated mixed results in perceptions of offensive advertisements among Chinese and German consumers. Tsai & Men (2014, p.1) found "both cultural differences and similarities between Chinese and American consumers' engagement with brand pages on social network sites."

3. Insignificant cultural differences (see Table 1). In 10 per cent of examined studies a combination of non-cultural external and internal factors has a stronger influence on consumer behavior than a factor of culture. Ko et al. (2007, p. 644) determined that "global consumer culture has a stronger influence than cross-national differences" in the context of fashion products. Akturan et al., (2011, p. 357) concluded that young adults in Turkey and France are very close in "perceptions, consumption styles, attitudes and characteristics," while differences between the countries are small. Such outcomes can be attributed to trends of cultural interpenetration, deterritorialization, contamination, pluralism and hybridization, described by Craig & Douglas (2006), which change configuration of cultural contexts and diffuse cultural differences.

4. No specification given. In 13 per cent of studies, mostly of theoretical nature, conclusions on the effect of cultural differences on consumer behavior were not explicitly stipulated (see Tab. 1).

Table 1 demonstrates that the share of studies that have detected the domination of cultural differences in consumer behavior in 2010 to 2016 (39%) is not as large as in the previously examined period – from 2005 to 2009 (57%). It is possible that these results support the assumption of the impact of cultural phenomena on consumer behavior and gradual elimination of cultural differences in the behavior of global consumers. Understanding specific characteristics of decision-making by consumers of different cultures enables transnational/global companies to determine structure and content of marketing strategies. In accordance with identified cross-cultural variations in consumer behavior a large number of studies (32 per cent) contain recommendations to develop differentiated marketing strategy (see Tab. 2).

Table 2: Analysis of proposed marketing practices

Marketing practices	**Number of studies* (%)**	**Number of studies containing levels of cultural differences**			
		Dominating differences	Mixed result	Insignificant differences	Not identified
Different marketing strategies	27 (31)	19	4	1	3
Marketing communications	21 (24)	10	8	2	1
Product policy (especially in part of increasing quality of products and services)	14 (16)	10	1	1	2
Segmentation (cross-cultural and national)	9 (10)	5	1	2	1
Branding	9 (10)	5	1	2	1
Targeting	6 (7)	3	1	-	2
Differentiated marketing communications	6 (7)	4	2	-	-
Marketing research	6 (7)	3	2	-	1
Positioning	6 (7)	4	1	-	1
Differentiated and global marketing strategies	5 (6)	2	2	1	-
Development strategy	5 (6)	2	-	1	2
Marketing mix	4 (5)	3	1	-	-
Global marketing mix	3 (3)	-	1	2	-
Relationship marketing	2 (2)	2	-	-	-
Internal marketing	1 (1)	-	-	1	-
Not identified	21 (24)				

*Each study may contain several practical recommendations on marketing application of obtained results; therefore, total sum should not equal total number of examined studies - 86 (100%)

Herstein & Tifferet (2010) in a cross-cultural study of the effect of personality traits on private brand consumer tendencies suggests that retailers should develop differentiated strategies for each country rather than adopt a generic approach to marketing of private brands. However, Herstein & Tifferet (2010) also note that a balance between internationalized and regionalized strategy should be attained. Watchravesringkan (2008) in a cross-cultural comparison of consumer vanity also warns that one should use 'standardized' marketing strategies with caution and consider alternative 'localized' marketing strategies.

Marketing communications prevail in discussion of practical marketing recommendations on dealing with consumers from different cultures/countries (24 per cent of examined

studies). Researchers particularly emphasize word-of-mouth (WOM) as a means of marketing communications, advertising appeals and importance of the use of up-to-date technologies in SMM for cross-cultural audiences. Kassim & Abdullah (2010) note positive effect of WOM on purchase intention, while Klemenčič et al. (2012) call on businesses to take WOM into account as a part of advertising policy among consumers from different cultures/countries. Schumann et al. (2010) also suggest that WOM communication is differentiated depending on cultural dimensions. Some researchers (Ko et al., 2004; Godey et al., 2012; Souiden et al., 2011, etc.) focus on advertising appeals as reflecting needs, benefits and values of consumers with various cultural backgrounds. Souiden et al. (2011), for instance, suggest that "marketers should highlight 'prestige' that consumers may gain" from purchasing branded fashion items in cultures where prestige is an important factor in consumer decision-making process. Another group of frequently used marketing implications is centered on application of web-based technologies (website, social networks, etc.) in cultures with technologically-savvy population.

Marketing implications regarding product policy are featured in 16 per cent of studies with the focus on service quality (see Tab. 3). This corresponds to statements by Cronin & Taylor (1992), Buzzell & Gale (1987) about the differences in relationship between service quality and formation of consumer loyalty and satisfaction in different cultures.

Segmentation accounts for 10 per cent of practical marketing recommendations and focuses on cross-cultural segmentation based on identification of global segments (Ko et al., 2007; Akturan et al., 2011) and methodological segmentation aspects (Tsai & Men, 2014; Schumann et al., 2014).

3. Conclusion

Discussion of a theoretical aspect of the research subject demonstrates the polemic character of the issue of impact of cultural phenomena on behavior of individuals in general, and specifically on behavior of consumers. However, it is undeniable that in conditions of globalization and development of global markets cultural differences in behavior of individuals become either less pronounced or are gradually eliminated.

The review of scholarly articles devoted to research of cross-cultural variations in consumer behaviour demonstrates that practical interest of international/global companies in this kind of research is driven by the intent to better understand consumer behaviour from a cross-cultural perspective. These companies aim to find solutions for a dilemma of selecting differentiated vs. standardized strategies for the purposes of increasing business effectiveness on global markets. The author expects that in conditions of rigorous development of global markets this interest in studying the extent of differences in variables describing behaviour of consumers from different cultures will considerably grow.

It is also essential for researchers to continue conducting studies in this domain in the view of rising influence on behaviour of consumers on global markets of such phenomena as cultural interpenetration, deterritorialization, contamination, pluralism and hybridization. In the view of these factors the ratio between studies that detect various extents of cultural differences/ similarities in consumer behaviour may significantly change in the future.

As far as future studies are concerned, researchers need to ensure that they provide necessary recommendations reflecting practical interest in cross-cultural research. Although the majority of studies state market interest as a motivation for cross-cultural research, over a

quarter of studies do not discuss marketing implications based on study results. Applied marketing recommendations suggested by researchers and based on studying cross-cultural variations in consumer behaviour will allow marketing management of international/global companies to select appropriate strategic and tactical solutions on markets of the companies' operations.

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GLOBAL TRENDS AND RUSSIAN PRACTICE OF WOMEN'S PARTICIPATION ON BOARDS OF DIRECTORS

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Abstract. The present article continues the research on gender diversity on corporate boards as an essential factor for companies' growth in today's environment. The current global trends show the growing female representation on boards of public companies. The paper describes how the challenge of board diversity is addressed internationally. Russia is far away from such developed countries as Norway, France, Sweden, and Italy. The paper examines how female representation on Russian boards is affected by gender inequality within the country. The proposed paper will focus on the results of some studies on the role of women in corporate governance. The business case for gender diversity in the Russian boardroom has not been treated in much detail in empirical literature, which can be explained by non-transparency of many Russian companies. However, our research provides some evidence of board composition in a sample of large Russian public companies and local (regional) companies with state participation. It also evaluates this evidence in terms of the effectiveness of more diversifying boardroom in the Russian corporate governance. The paper aims at analyzing economic and financial performance of companies with women on their corporate boards; examining whether the women's representation on the corporate board contributes to company's growth and development, or it is just a tribute to 'breaking the glass ceiling' trend.

Keywords: corporate governance, boards of directors, gender diversity, women on boards

JEL Classification: G34 G38 J16 M14

1. Introduction

Diversity is deemed to be a sensible approach to improve board effectiveness and performance (Dallas, 2002). Boardroom gender diversity refers to the balance of gender composition of corporate boards. The most recent academic research (2016-2017) is still aimed at better understanding of the impact of gender diversity on firm value or accounting performance around the world (for example, Saeed et. al., 2016; Byron & Post, 2016; Willows & van der Linde, 2016; Marinova et al., 2016; Adams, 2016; Rao & Tilt, 2016; Ali & Shabir, 2017; Haque et al., 2017; Yasser et al., 2017; Rossi et al., 2017)

The present article continues the research on gender diversity on corporate boards as an essential factor for companies' growth in today's business environment (Tkachenko & Pervukhina, 2016). The emphasis of the present study is the Russian business context and the challenges the majority of Russian public companies are facing in order to address the issue of

female representation on corporate boards. Russia is far away from such developed countries as Norway, France, Sweden, and Italy. The proposed paper will focus on the results of some studies on the role of women in corporate governance. The business case for gender diversity in the Russian boardroom has not been treated in much detail in empirical literature, which can be explained by non-transparency of many Russian companies. The paper aims at analyzing economic and financial performance of companies with women on their corporate boards; examining whether the women's representation on the corporate board contributes to company's growth and development, or it is just a tribute to 'breaking the glass ceiling' trend. Our research provides some evidence of board composition in a sample of large Russian public companies and local (regional) companies with state participation. It also evaluates this evidence in terms of the effectiveness of more diversifying boardroom in the Russian corporate governance.

2. Challenges of gender diversity in Russia

Almost a decade has passed since the corporate governance reforms emphasized board gender diversity triggered by the European Commission Strategy for Equality between Women and Men (2010-2015) adopted in September 2010. Russia, the largest country, expanding over the Eurasian continent, combines the European and Asian characteristics, which makes it quite difficult to position the country in the relevant group. That might be one of the reasons for Russia's discrimination in terms of the international research on corporate governance and board gender diversity in particular. Another reason is the lack of effective regulations to improve board gender diversity on the federal level. To complete this 'regulatory vacuum' (Saeed et. al., 2016), numerous public and professional associations, for example, the Moscow Exchange, the Bank of Russia, and the Organization for Economic Co-operation and Development (OECD), have made attempts to include the board composition and gender issues on their agendas. On the other hand, for the last few years the Federal Agency for State Property Management (Rosimushchestvo)[4] has never addressed the challenge of gender diversity in the boardrooms. The issue has been considered as a possible constituent in the analysis of statistical data on the board composition. When making decisions on the selection of executive candidates, the gender criterion is not a priority. In 2013, across all board member roles of the top 50 Russian public companies, only 7% were held by females, with a maximum of three females on board. None of these companies had a female as a board chairperson. However, 44% of respondents considered that broadening the diversity of the board would have a positive impact on its effectiveness (PWC, 2014).

In spite of this negative evidence, the issues of corporate governance and board diversity have recently become urgent for business owners. This trend has evolved along with the growth of businesses, and owners taking back seats in operational management of the companies. The owners need the mechanism of regular control over the implementation of business objectives and work of the CEO in order to respond to their stakeholders' needs and adhere to societal norms (Saeed et. al., 2016). Though the Federal Law on joint stock companies (1995) does not set any requirements for the number of independent directors on the board, the prevailing majority (90% in 2014) of Russian public companies reported that they do set limits on the number of board members in their in-house documents (e.g. charters,

[4] The Federal Agency for State Property Management (Rosimushchestvo) is a subdivision of the Russian Ministry of Economic Development that manages Russia's federal state property and specifically focuses on ranking the level of corporate governance in companies with state participation.

articles of association, terms of reference). The following requirements for the number of independent directors on the board are provided by the Moscow Exchange listing rules: at least three independent directors for List A1 and A2, and at least one director for lower lists (Spencer Stuart, 2017). One positive development is the slow but steady increase in the number of women serving on executive committees, which in 2016 stood at just under 12% (Spencer Stuart, 2017). If this number continues to rise, it may broaden the traditional candidate pool from which non-executive directors are drawn.

3. Board composition of public companies

Our study of board composition includes 65 Russian public companies listed in 2016 in Moscow Exchange Top List A1 and A2. We obtained the information on the board composition and firm characteristics through company's website search. Thirty three out of the sampled companies have all-men boards. In other words, approximately half (49.23%) of our initial sample companies have female representation in the boardroom. These companies are active in various industries: energy – 28.13%; metallurgy – 12.5%; construction, real estate, and banking – 9.37% each. Six industries (telecommunications, transport, mining; oil and gas; finance and insurance; and machine building) are equally represented – 6.25%. The IT industry is represented by one company (3.13%) (Table 1).

Table 1: Women on boards of Russian public companies (as of June-December 2016)

	Company name	Industry	Board size	Women on boards	Share of women on boards, %	Female NED*	Female ID**
1	Interregional Distribution Grid Company of Centre	energy	11	3	27.27	3	--
2	Unipro	energy	9	2	22.22	--	--
3	Interregional Distribution Grid Company of the North-West	energy	11	2	18.18	--	--
4	Interregional Distribution Grid Company of Urals	energy	11	2	18.18	--	--
5	Inter RAO UES	energy	11	1	9.09	1	1
6	Enel Russia	energy	11	1	9.09	--	--
7	Interregional Distribution Grid Company of Volga	energy	11	1	9.09	--	--
8	T+ Group	energy	12	1	8.33	--	--
9	Mosenegro	energy	12	1	8.33	--	--
10	United Company Rusal	metallurgy	18	4	22.22	4	1
11	Polymetal International	metallurgy	9	2	22.22	1	1
12	Magnitogorsk Iron and Steel Works	metallurgy	10	2	20.00	1	1
13	MMC Norilsk Nickel	metallurgy	13	1	7.69	--	--
14	Pick Group	construction and real estate	9	3	33.33	2	1
15	LSR Group	construction and real estate	9	1	11.11	--	--
16	Mostotrest	construction and real estate	11	1	9.09	1	1

17	Otkritie Bank	banking	9	2	22.22	--	--
18	Sberbank Group	banking	14	2	14.29	1	1
19	Credit Bank of Moscow	banking	10	1	10.00	--	--
20	MegaFon	telecom	7	1	14.29	--	--
21	Mobile TeleSystems	telecom	9	1	11.11	1	1
22	TransContainer	transport	11	2	18.18	1	1
23	Europlan	transport	9	1	11.11	1	1
24	Alrosa	mining	15	3	26.67	3	2
25	Polyus	mining	9	2	22.22	1	1
26	Lukoil	oil and gas	10	1	10.00	--	--
27	Nizhnekamskneftekhim	oil and gas	11	1	9.09	--	--
28	Moscow Exchange	finance and insurance	12	3	25.00	3	2
29	Rosgosstrakh	finance and insurance	11	2	18.18	--	--
30	Sollers	machine building	9	2	22.22	--	--
31	RPC United Wagon Company	machine building	10	1	11.11	--	--
32	Yandex	IT	8	2	25.00	2	2

Source: study database
*NED - non-executive director
**ID - independent director

Female representation is measured using five alternatives: the total number of board members (board size); number of female members on board, proportion of female members on board; number of female non-executive directors and number of female independent directors on the board.

Our analysis shows that in 12 out of 32 companies, the proportion of female board members exceeds 20% (Table 1). The average board in Russia consists of 10.1 directors, a continued reduction from 10.6 and 10.3 in the previous two years (Spencer Stuart, 2017). In our sample, the board of MegaFon (telecommunication) is the smallest with seven members, while the largest, Rusal (metallurgy), has 18. Nine out of 32 companies work in the energy industry. The share of women on corporate boards of these companies varies from the lowest 8.33% in T+ Group and Mosenegro (one female member out of total 12) to the highest 27.27% in Interregional Distribution Grid Company of Centre (three female members out of total 11).

Four metallurgical companies in the sample – Rusal, Polymetal International, Magnitogorsk Iron and Steel Works, and Norilsk Nickel – are the business world leaders in the market of precious metals, aluminum, nickel, ferrous and nonferrous metals. These companies are building a model of excellence, adhering to the corporate governance standards, the principles of equality and diversity in the board composition, and social reporting. In the reporting year, Rusal corporate board included the highest number of female members in the group - four. In Magnitogorsk Iron and Steel Works, one fifth of the board members are women (2 vs 10). As Russia is still a relationship-based society, firms tend to engage female directors who are family members. That is exactly the case: one director is the daughter of the Chairman. There is a thread that board nominations driven mainly by personal relationships may restrict the pool of potential candidates, and there is greater likelihood of nominating less qualified women (Siegel et al., 2011). Nevertheless, since 2012, female directors of Magnitogorsk Iron and Steel Works have been nominated for the National award "Director of the Year" and "50 Best Independent Directors" on several occasions. The

company's corporate secretary, Valentina Khavantseva has been in the rating of "25 Best Corporate Governance Directors – Corporate Secretaries" more than once.

Among the three companies that are in the construction and real estate business, Pick Group, one of the leading development and construction companies in Russia, has the highest percentage of female directors: 30%. In order to improve the efficacy of the corporate board, the company strives to attain the optimal balance between executive, non-executive, and independent directors. Four out of nine board members are independent directors, including one woman – Zumrud Rustamova, who is also a member of corporate boards of Magnitogorsk Iron and Steel Works and RPC United Wagon Company.

Among three banks in our sample, Otkritie Bank is the largest private bank in Russia and the fourth in terms of assets. Two board members out of nine are women.

Alrosa, a Russian mining company with state participation, has approximately 27% female representation on board. Two women are independent directors.

In two from 32 companies, women constitute a quarter of the board members: Yandex (2 vs 8) and the Moscow Exchange (3 vs 12).

4. Women in companies with state participation

The current estimates show that approximately 70% of all companies in the Russian economy are the companies with state participation. What place do women occupy in CG of this type of companies?

According to Rosimushchestvo data, collected from over 650 joint stock companies with state participation, at the end of 2016, corporate boards and audit committees were composed of more than 5700 members, 37% of which were women. There were approximately 3700 board members, with 2800 men and 900 women. The percentage of female board members stood at 24.3%. Totally, 2000 members were elected in audit committees but in this case, the percentage of female members exceeded male ones: 60% (1200 women) vs 40% (800 men).

The largest number of female board and audit committee members was recorded in joint stock companies, controlled by the Ministry of Agriculture and the Ministry of Industry and Trade of the Russian Federation. This might be explained by the fact that these two ministries supervise the largest number of joint stock companies.

Our second sample of companies is composed of 22 companies taken from the database of the Sverdlovskaya Oblast Territorial Administration of Rosimushchestvo. Sverdlovskaya Oblast is one of the top ten leading Russian regions. It is ranked eighth in terms of gross regional product; fourth with regard to wholesale trade turnover; seventh in terms of shipped industrial output; and tenth by investments in fixed capital.

Women are present in the boards of 17 out of 22 companies. Three companies have 60% female board members; two – 40% female board members; one company – around 30%; 11 companies – 20% female board members. Thus, the average percentage of females on the board is 30%. Female independent directors are present in five companies. Their academic qualification is quite high: 2 out of 5 women hold a doctoral degree.

Women representation in audit committees is more significant. All-female audit committees exist in four companies. In 13 firms their representation stands at around 67%; in three companies the proportion of female audit committee members accounts for

approximately 33%. Thus, in 20 firms with audit committees the average percentage of female members is 68%. The number of corporate secretaries in the sampled companies is extremely low – only in three companies the position of a corporate secretary is held by a woman.

As in the case with the all-Russia company analysis, on the regional (oblast) level the gender factor is not the focus of special consideration as compared to the essential requirements for the professional criteria set for both male and female board members.

Research suggests that the impact of women's board participation on performance is conditional on a minimum critical mass (Konrad et al., 2008), which makes women comfortable to voice their views. Konrad et al. (2008) suggest three women as the number beyond which gender ceases to be a barrier to acceptance and communication. Only five out of 32 (around 16%) Russian companies and three out of 22 (about 14%) local firms we studied have passed this threshold.

5. Conclusion

Russian companies, as before, do not favor women. The executive management is dominated by men. Prevalence of age-old stereotypes and male dominated corporate cultures have kept the 'glass ceiling' intact. Most women are stuck to specific usually low middle level managerial functions such as human resources, public relations and communication, and finance and administration, rather than to top management positions (International Labour Organization, n.d). The findings of the 2013 study, launched by the "Committee of 20's"[5] in the collaboration with ExxonMobil, showed that the barriers for women's career advancement still exist today. These are the lack of support from other people, including family (54% of respondents) and a negative perception of women as leaders in the society (53% of respondents). In addition to the 'glass ceiling' concept, the 'sticky floor' issue has come into existence. It turned out that many barriers are more than just objective factors — they exist on the consciousness level. These factors are holding women back and do not allow them to propel the corporate ladder (Женщины в современной экономике: вызовы и решения, n.d.).

However, the research indicates that the presence of female members in the board can affect decision making due to a variety of perspectives and non-traditional approaches to problems (Adams et al., 2015). Female directors are more likely to be stakeholder oriented, concerned about ethical principles and socially responsible behaviour (Adams & Ferreira, 2009; Byron & Post, 2016). Searching and recruiting equally experienced and qualified female directors will eventually result in the best possible board structure. Russia still needs to establish a national board gender policy. Meanwhile, Russian women do not give up. In 2016, 14 women (10 corporate directors and four corporate secretaries) were included in the Russian TOP-50 Best Corporate Governance Directors list (Топ-1000 российских менеджеров, 2016). The 2016 Rating of the Russian Institute of Directors of the top 250 executives reported 33 women (13.2%). The 2016 National Award "Director of the Year" initiated by the Association of Independent Directors was given to three women out of the 50 best independent directors. Eight women were nominated among "The 25 Best Corporate

[5] The "Committee of 20's" is a nonprofit organization of the most successful Russian business women, who hold top positions in leading companies, have achieved their success in a comparatively short period by starting their companies from scratch and growing them into recognized industry leaders.

Governance Directors – Corporate Secretaries". In the nomination "The Professional Director of the State Company" the award went to Tatiana Olifirova, the Chairperson of OAO Crystall, Smolensk. Is this not the evidence that Russian women do accelerate their representation in executive roles and do it successfully?

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INFRASTRUCTURE FINANCING: GLOBAL CHALLENGES

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Abstract. Adequate infrastructure financing is an important driver of long-run economic growth. Traditionally, infrastructure has been funded mostly through public investment. However, in view of budgetary resources scarcity and lack of capacity within the government to implement these ambitious programmes, the strategy of the government relies significantly on promoting investment through a combination of public investment and private participation. It is shown that the high frequency of crises in the global economy, associated with decline in production, the loss of business solvency makes it necessary to identify some key obstacles for greater infrastructure finance. The foreign and domestic practice in the formation and development of a market for long-run investment in infrastructure has been examined; sources and mechanisms for organizing long-run investment in infrastructure have been identified, as well as the role of specialized development institutions in financing infrastructure. The main trends in the development of the market for long-run investment in Russia and its constraints under the conditions of globalization are identified. Given the special status of financing long-run infrastructure projects, a system of incentives and measures is proposed that would, on the one hand, specifically stimulate and protect investment in infrastructure, and on the other, create a common quality investment environment for infrastructure projects. The paper presents the results of research new financing approaches reflecting the market changes and the advent of new financial instruments. A greater variety of financial instruments for infrastructure financing would help to make infrastructure more attractive for a broader group of investors and would allow a better diversification of risks.

Keywords: globalization, phases of the economic cycle, financing, infrastructure, projects

JEL Classification: O16, O18, G21, G23, F21

1. Introduction

Adequate infrastructure financing is an important driver of long-run economic growth (Calderon & Serven, 2004). In the economic literature different approaches to the definition of the «infrastructure» are used, but the functional aspect of this category is to ensure the integral functioning of society and the economy, to maximize the satisfaction of the population needs and to achieve target indicators by all economic entities. Traditionally, infrastructure has been funded mostly through public investment. However, in view of

budgetary resources scarcity and lack of capacity within the government to implement these ambitious programmes, the strategy of the government relies significantly on promoting investment through a combination of public investment and private participation. It is shown that the high frequency of crises in the global economy, associated with decline in production, the loss of business solvency makes it necessary to identify some key obstacles for greater infrastructure finance.

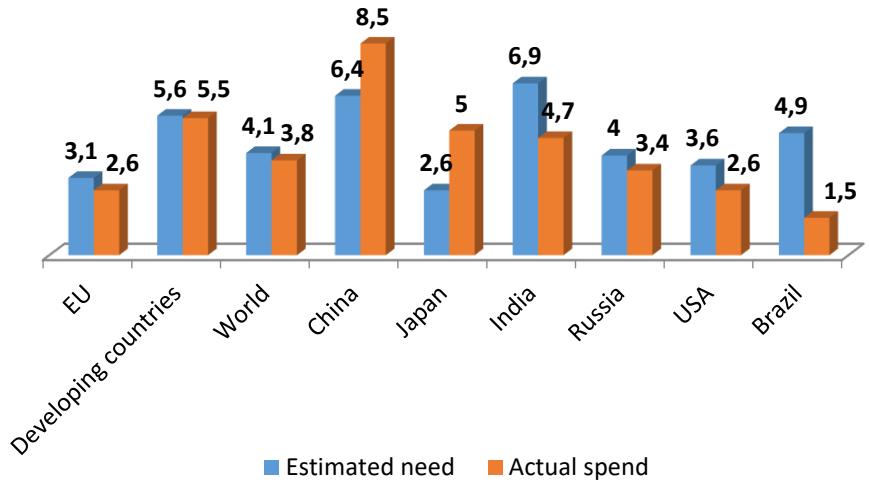
1.1 Demand for Long-Term Financing of Infrastructure

Modern macroeconomic conditions impose new requirements for the creation, functioning of infrastructure facilities, which must meet high standards of productivity, environmental and socio-economic efficiency. At the same time, high capital intensity and long-term infrastructure projects require constant attention to their sources and financing conditions.

World Bank studies show that a 10% increase in investment in infrastructure development contributes to an increase of about 1 % economic growth in the long term (G20, 2013). The demand for infrastructure investments is likely to grow faster than output, and therefore tax revenues. A McKinsey study estimates that the share of total infrastructure financing in GDP will need to increase from around 3.8% to 5.6% in 2020 worldwide (McKinsey Global Institute, 2012).

In emerging markets, the required increase would be even more pronounced. Analysis for the G20 suggests that developing countries will need to invest an additional 1 trillion US dollars a year up to 2020 to keep pace with the demands of urbanisation, and better global integration and connectivity (G20, 2013). Developed countries will likely need to invest a similar amount to finance low-carbon emission energy projects through 2050; on top of necessary investments into transport and social infrastructure at potentially similar amounts.

Figure 1: Infrastructure spending % of GDP



Source: McKinsey Global Institute, 2013

In Russia, infrastructure investments are about 3.6-4.2% of GDP, which is close to the world average (Figure 1). By 2020, the volume of infrastructure investments will reach 650 billion US dollars (an average of 90 billion US dollars a year). These funds are sufficient for a moderate expansion of the infrastructure and gradual improvement of its quality, but not for advanced development.

1.2 Infrastructure as an Asset Class

A few common economic characteristics differentiate infrastructure assets from other asset classes. These characteristics also make it more difficult to match investment demand and financing supply (Ehlers, 2014):

1. Even though the direct payoffs to an owner of an infrastructure project may not cover its costs, the indirect externalities can still be hugely beneficial for the economy as a whole. Externalities include large benefits of infrastructure services to a wide range of other sectors. Such benefits are fundamentally difficult to measure. Even if they can be measured, charging for them may not be feasible or desirable.

2. Infrastructure projects are often complex and involve a large number of parties. Infrastructure often comprises natural monopolies such as highways or water supply, and hence governments want to retain the ultimate control to prevent an abuse of monopoly power. This requires complex legal arrangements to ensure proper distribution of payoffs and risk sharing to align the incentives of all parties involved. However, some measures needed to restrict monopoly power must still ensure that governments respect pre-agreed contracts.

3. Many infrastructure investments generate cash flows only after many years and the initial phase of an infrastructure project is subject to high risks. In addition, the uniqueness of infrastructure projects in terms of the services they provide makes infrastructure investments less liquid (Inderst, 2010).

These three elements – the time profile of cash flows, high initial risks and illiquidity – make purely private investment difficult and costly.

2. Sources of Infrastructure Financing in Russia: Realities and Perspectives

Russia launched many large-scale state infrastructure projects last years. They include:
– Development of Sochi region as Recreation Area and preparation of Winter Olympic Games 2014;
– Construction of Trans-Syberian highways;
– Construction of Dams and Power Plants around Russia;
– Development of Russian Pacific Area and preparation of Asia-Pacific Summit in 2012;
– Nuclear Power Plants Construction Program, etc.

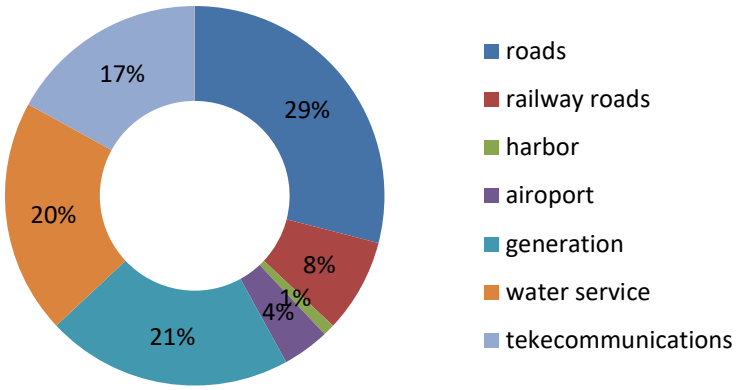
Figure 2 shows structure of infrastructure financing in Russia (Figure 2).

2.1 Sources and Mechanisms for Organizing Long-Term Investment in Infrastructure

Infrastructure financing instruments can be classified using the classical division of used capital.

State investments are about 65%, but the opportunities for their further expansion are limited by high debt burden and a deficit of state budgets, inadequate efficiency of government investment spending (Aschauer, 1989). The volume of budget infrastructure financing in 2016 was about 1.4 trillion US dollars, its sources have traditionally become tax revenues, excise taxes or the National Welfare Funds. At the same time, a significant increase in budget spending on infrastructure in the coming years is not expected, since high debt burden and budget deficits force states to cut spending, including on infrastructure.

Figure 2: Structure of Infrastructure Financing in Russia



Source: own estimates based on Finance Ministry and CBR data

The role of private investment, which accounts for 35% of infrastructure investment, is significantly increasing. Governments of different countries are developing incentive measures to attract investors and find a reasonable balance of risk and profitability of infrastructure projects.

In 2016 the volume of private investment in infrastructure amounted to about 700 billion US dollars, of which 30% (164 billion US dollars) was drawn from the profits of infrastructure enterprises and the placement of their shares among portfolio investors, and the remaining 70% - through the issuance of bonds and bank loans, including from international financial institutions, such as the World Bank, the European Bank for Reconstruction and Development, the Asian Development Bank and others.

The share of bank loans is about 160 billion US dollars a year, according to the Infrastructure Journal. The annual dynamics of granting loans to infrastructure companies is difficult to track, but in general, in recent years, commercial banks are reluctant to lend to projects with a long payback period. After the financial crisis of 2008, the cost of debt financing of infrastructure facilities, especially in developing countries, increased by an average of 1-2 %, the change in the national currency rate and the increase in inflation further aggravated the situation in the Russian Federation. Factors constraining the development of this tool for financing infrastructure projects include the increase in the requirement for the ratio of borrowed funds and equity funds to 70:30 against the pre-crisis 90:10 in order to reduce credit risks. As a result, the weighted average cost of capital for the infrastructure project increased.

It is expected that the emptiness, which is formed after the reduction of activity of banks in the field of infrastructure financing, will be filled with activity of the capital market, including using project bonds. Project bonds can become a reliable and cheaper financial resource for long-term projects in the field of housing and communal services and infrastructure in the context of economic diversification and a new wave of investment in infrastructure projects (Brealey et al., 2010).

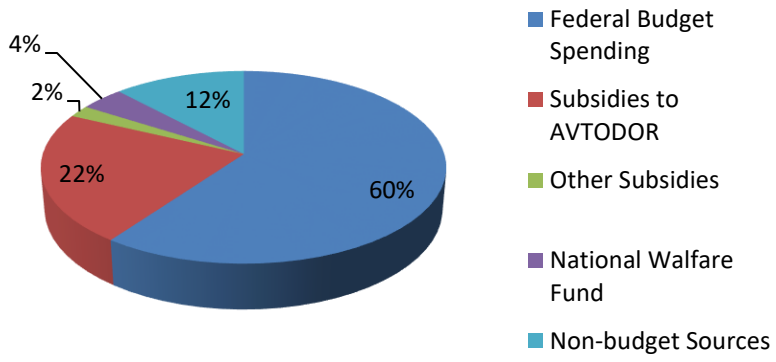
Debt financing through the issue of corporate bonds accounts for about 18% of all investments in infrastructure.

In recent years, many countries are making efforts to develop public-private partnership (PPP) in the field of infrastructure construction (Engel et al., 2010). As a result, the aggregate volume of private investments within PPP over the past 10 years has grown almost fourfold - to 180 billion US dollars in 2012, however, in the total volume of infrastructure investments, the share of PPP is about 8%. Moreover, the global financial crisis of 2008 stopped this growth due to the above-mentioned reasons - reduction of government spending on infrastructure and tightening of credit conditions by commercial banks. At the same time, the observed increase in investments from infrastructure funds affects the most attractive projects, where state support is not required.

Russia has a positive experience of investing private and institutional investors in infrastructure projects through equity and debt financing, PPP. Figure 3 shows structure of costs for road infrastructure development. A relatively small amount of investment is due not only to a small supply of these instruments on the market, but also to several fundamental reasons for the conditions of the Russian investment environment, in particular:

- specific risks of infrastructure projects (long-term nature of projects, non-financial scope of the project without recognized indicators);
- lack of a systemic, long-term and predictable policy regarding the planning of infrastructure development in the Russian Federation;
- lack of qualitatively prepared infrastructure projects;
- lack of a guarantees system for the rights of private and institutional investors;
- lack of incentives to place funds in infrastructure projects compared with the placement of assets on bank deposits.

Figure 3: Structure of costs for road infrastructure development



Source: Federal Target Program «Development of Transport System of Russia», Gazprombank estimates (Gazprombank, 2015)

All this leads to the fact that investments in infrastructure are now carried out outside the specially created for this attractive environment, which would take into account the magnitude of projects, their capital intensity, and most importantly - long-term. In addition to the uncertainties that are objectively inherent in long-term investments, investors are extremely vulnerable to any legislative and regulatory innovations related to tariff policy, service payment limits, changes in the competitive field and other significant conditions for the implementation of infrastructure projects that directly affect their profitability.

2.2 Barriers to Infrastructure Investment in Russia

Restrictions on the financial provision of infrastructure development in the Russian Federation, in our view, are related to both demand and supply. On the supply side: uncertainty of state policy in the sphere of infrastructure (conflicts of interest, bureaucracy, corruption); information asymmetry in the infrastructure sector; insufficient information on infrastructure projects; financial risks (high financial leverage, refinancing problems); lack of suitable projects; heterogeneity of projects; reputational risks; uncertainty about tax revenues in the long-term (covering the time frame for the implementation of most infrastructure projects) may lead to a reassessment of the budget by the public authorities and the adoption of excessive expenditure obligations for projects; additional responsibility for the risks of the infrastructure project, problems in debt management and increasing the budget load of government bodies, as a result of the adoption of optimistic forecasts as a basis, a lack of competence in risk management, and errors in financial analysis. In addition to explicit obligations, state and municipal government bodies, participating in infrastructure projects, bear implicit obligations and risks (for example, public expectations, political conditions), which are often implemented in the late stages of the project, and which are important to take into account when determining the amount of budgetary financing and project evaluation.

On the demand side, the constraints of financial support for the development of infrastructure:

1. The limited nature of investors' own resources for participation in large-scale projects, as well as the complexity and cost of attracting debt financing for infrastructure facilities; unsuitable conditions for participation in collective investments.

2. Lack of necessary knowledge and experience of investments in infrastructure, regulatory barriers; risk of portfolio concentration; uncertainty of financial result.

3. The scale of the infrastructural objects being built extends the phase of their design, causes the imposition of design and construction processes, makes it difficult to create and reduces the quality of the project documentation, requiring its revision and change throughout the construction phase.

4. The longevity and capital intensity of infrastructure facilities impose increased requirements on the type, volume, timing and other conditions for attracting financing, and presuppose the duration of the return of investments by investors and creditors and, consequently, the need for applying refinancing schemes of obligations and innovative financing instruments.

5. Low elasticity of demand for products / services of an infrastructure facility and insignificant volatility of project profitability increase its financial viability and ensure stable and predictable operating cash flow at the operational stage of the project implementation, however, the scheme for charging infrastructure services may not provide for a significant one-time income, which lengthens payback period and increases risks.

6. The uniqueness and innovation of infrastructure projects ensure high competitive advantages of such facilities, but they increase the technological and organizational complexity of their implementation, requiring the attraction of rare (unique and innovative) resources.

7. The complexity of the project design, the heterogeneity and scale of the infrastructure facilities require the involvement of a large number of participants, the creation of a legal

mechanism for their interaction with the goal of efficient distribution of payments and risks and equalization of incentives for all stakeholders of the project.

8. The heterogeneity and uniqueness of infrastructural assets, on the one hand, protect the project from competition, and on the other, increase the complexity and uncertainty of its implementation, reducing market liquidity, multiplying risks and increasing the asymmetry of information.

Thus, the variety of legal and economic structures created for the implementation of the infrastructure project reduces the information transparency of its financial model for investors, increases ambiguity of benchmarks and metrics of investment efficiency. In addition, participation in the development of infrastructure by the public sector leads to significant distortion of project information in connection with the political support of individual industries and territories. Potentially high uncertainty, together with the long-term nature of investment in infrastructure, can hinder the attraction of private capital to projects.

3. Conclusion

Financing of infrastructure projects has a complex and diverse risk profile due to the uniqueness, technical complexity and low liquidity of the assets being created, which leads to constant adjustments and changes during design and construction and requires adaptive management of the financial infrastructure support process.

The above limitations on investment in infrastructure are not difficult to overcome, careful assessment of investment risk reduction instruments, knowledge of regional practices, involvement of reliable counterparts in the implementation of infrastructure projects, state protection and support of investors, as well as the maintenance of a favorable macroeconomic, legal and investment climate, both in region, and in the country as a whole (Morkovina, 2016). A greater variety of financial instruments for infrastructure financing would help to make infrastructure more attractive for a broader group of investors and would allow a better diversification of risks (Esfahani & Ramires, 2003).

Thus, the development and proper functioning of infrastructure facilities should be provided at the national and / or supranational level: the market mechanism at the regional level is not able to create conditions for the organization and production of infrastructure goods, and to achieve a given level of their socio-economic efficiency.

Given the special status of financing long-term infrastructure projects, it is advisable to create a system of incentives and measures that would, on the one hand, specifically stimulate and protect investments in infrastructure, and on the other, create a common quality investment environment for the preparation and implementation of infrastructure projects.

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CLUSTERING EUROPEAN AIR NAVIGATION SERVICE PROVIDERS: IS FRAGMENTATION REALLY AN ISSUE?

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Abstract. The paper deals with the current structure of the European airspace based on the the countries´ air navigation service providers and Functional Airspace Blocks set by the Single European Sky regulations. The Functional Airspace Blocks were intended to be among the main drivers to achieve the Single European Sky´s goals and remove the fragmentation of the European airspace which impacts adversely on the global competitiveness of Europe in civil aviation. The fragmentation of the European airspace is perceived as one of the obstacles in the evolution of the European air industry towards higher competitiveness. Therefore, we confront the composition of current Functional Airspace Blocks with the results of cluster analysis. The cluster analysis uses the latest ACE Eurocontrol benchmarking report´s indicators, which influence the cost-effectiveness of the European air navigation service providers. Each European air navigation service providers is clustered according to support cost ratio, air traffic controllers´ labour cost and air traffic controller´ s productivity in composite flight hours. Based on the results, the policy recommendations are outlined considering the impacts on the European airspace global competitiveness. The results of clustering can be useful also in the context of Brexit´s issues. The results reveal that there are still miscellaneous dimensions of fragmentation in the European airspace which ought to be reflected more in the future tracks of European airspace de-fragmentation.

Keywords: airspace, integration, European Union, fragmentation, cluster analysis, competitiveness

JEL Classification: L93, F52, K23

1. Introduction

Economic integration within the European Union has particular features in particular industries. To integrate the provision of air services, the European Union adopted measures to create the single, i.e. the pan-European market with commercially operated air services. In this effort, single domestic as well as external aviation policies were established in the EU to overcome the fragmentation which had been typical in the provision of air services among the EU member states in the past. Starting from April 1997, the common rules of commercial air services within the EU are set by the respective EU regulations, creating thus the single market with air services in the EU. While the progress in the integration of air services (i.e. in so called down-stream part) was achieved relatively in a little time, integration of aviation infrastructure (i.e. in so called up-stream part) is still a topical agenda in the EU. Air navigation service providers (ANSPs) as specific economic and operational entities are

mandated to administer countries´ airspaces and provide air navigation services to airspace users within the airspaces of their territories. This nationally driven governance of airspace stemming from the sovereignty of countries is behind the fragmentation of the European airspace. Due to the fragmentation, the European air navigation service providers as whole fall behind with FAA (the US air navigation service provider) with regard to majority of performance indicators (European Commission et al., 2016). The persisting fragmentation of the European airspace costs about € 4 billion annually (European Commission, 2017). It impacts adversely on the competitiveness of European aviation in the global economy. As Baumgartner and Finger (2014) properly stated *"the Single European Sky is the latest and perhaps last step in the creation of an integrated European aviation market"*. In the paper we focus on the level of fragmentation in the European airspace using a cluster analysis approach. The analysis covers 37 European ANSPs and factual data contained in the Eurocontrol (2017) ATM Cost-Effectiveness 2015 Benchmarking Report. In the analysis, the SES states, also the states within the European Common Aviation Area as well as the rest of European states not covered by the Single European Sky regulations are included. As the analysis is aimed at economic dimensions of the European airspace fragmentation, quantitative economic indicators are used. Subsequently, the generated clusters of European air navigation service providers are confronted with the assignment of European ANSPs to current functional airspace blocks (FABs) and consequently, several aviation policy´s considerations are discussed.

2. Single European Sky: Policy of de-fragmentation

To overcome the fragmentation of the European airspace, the European Commission came with the initiative of Single European Sky (SES) in 2004. The Single European Sky legislative framework is built upon four Basic Regulations (N° 549/2004, 550/2004, 551/2004 and 552/2004) covering the creation of Single European Sky, provision of air navigation services, the organisation and use of airspace and the interoperability of the European Air Traffic Management Network). At present, the significant issues of the European airspace are subject to a comprehensive Single European Sky legislation which contains several tens of legislative acts. Thus, as a result of the Single European Sky initiatives, the European Commission has been acquiring more competencies over the changes aimed at the European airspace de-fragmentation. The process of the European airspace integration has been intensified by the procedure of the common performance scheme which has been implemented since 2012. Within the common performance (and common planning) scheme, key performance indicators in four key performance areas (capacity, safety, environment and cost-efficiency) started to be set by the European Commission. This mechanism is obligatory and pending for target setting at national levels and the levels of functional airspace blocks. The functional airspace blocks reflect on an urgent challenge to organise airspace and the provision of air navigation services in Europe according to operational requirements rather than to national borders. Formally, nine FABs have been established within the SES policy. As Eurocontrol (2017) informs only two of nine FAB´s initiatives have already been implemented (the UK-Ireland and Denmark-Sweden FABs). In spite of the realized SES´s initiatives, the goal of full economic and operational integration of the European airspace has not been achieved so far. European ANSPs are still very miscellaneous in terms of many operational, economic and managerial issues (Tomová, 2016) and this diversity (together with national sovereignty) inhibits from a more radical structural reform of European airspace (Tomová, 2015). The progress in the realization of the Single European Sky vision needs not

only fruitful discussions of possible alternatives against the current SES policy´s routing, but also new methodologies which could serve to assess achieved goals in de-fragmentation of the European airspace so far and in the future as well.

3. Clustering European Air Navigation Service Providers

3.1 Methodology

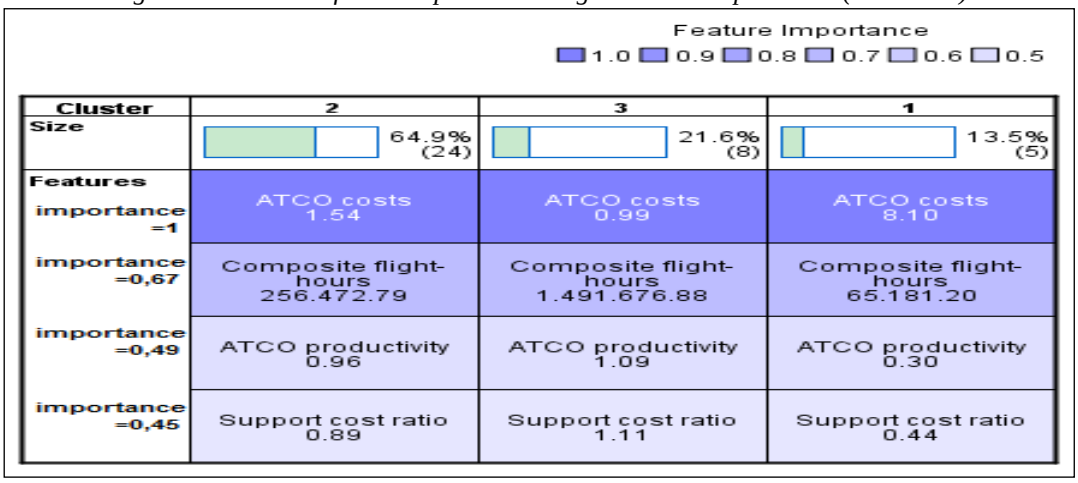
Although the methodology of cluster analysis has been used in economic research of aviation several times, it is still rather sporadic with regard to aviation infrastructure entities. Vogel & Graham (2013) as the first ones emphasized the usefulness of cluster analysis in the benchmarking of airports and performed the pioneering airports´ clustering; Magalhães et al. (2015) used the approach to benchmark world airports. In the context of air navigation service providers, the potential of cluster analysis´s methods has not been exploited fully yet, in despite of growing benchmarking research focused on air navigation service providers. This is rather contradictory to the fact that just ANSPs are different each other and any benchmarking of their performance indicators needs to respect many endogenous and exogenous factors which can be different in different countries and world regions. Benchmarking studies of ANSPs performed by Button & Neiva (2014), Arnaldo (2014) and Bilotkach et al. (2015), Ćujić et al. (2015) could be supported by the results of cluster analyses producing more homogenous clusters of air navigation service providers within an investigated sample. Thus, the methodology of cluster analysis is seen by us as very perspective to identify natural market areas in the provision of air navigation services in Europe which would be suitable for (structural) integration. As Button & Neiva (2013) stated there had been still politically determined "market areas" within European airspace; and according to our opinion also in the implanted SES´s measures.

From the portfolio of the cluster analysis we exploited in this research two-step clustering and the BIC clustering criterion available at PASW Statistics 18 Software. Four input features from clustering were taken over from the Eurocontrol (2017) ATM Cost-Effectiveness (ACE) 2015 Benchmarking Report. We were motivated to identify the role of the chosen economic indicators for the clustering of 37 European ANSPs. As financial cost-effectiveness is among the key performance areas of the SES initiative, we rooted three indicators which serve as multiplicative components of financial cost-effectiveness (air traffic controllers (ATCO) hour productivity (ATCO-hour productivity)), employment costs per ATCO-hour and so-called support cost ratio (total costs divided by ATCO employment costs) – all indicators in the form of performance ratios. The performance ratios contained in the Eurocontrol (2017) report reveal the relationship between the value for an air navigation service provider and the respective indicator computed for the whole, i.e. pan- European system. When necessary, the indicators were transformed to an inverse form to ensure that the value greater than one informs about a performance better than the European as a whole (and vice versa). The fourth indicator we used in the cluster analysis was represented by composite flight hours - the main output indicator of ANSPs.

3.2 Results

The results of performed cluster analysis are contained in Figure 1 (a standard output of PASW Statistics 18 Software). The quality of the produced clusters was stated as good by the silhouette measure of cohesion and separation.

Figure 1: Clusters of 37 European air navigation service providers (2015 data)

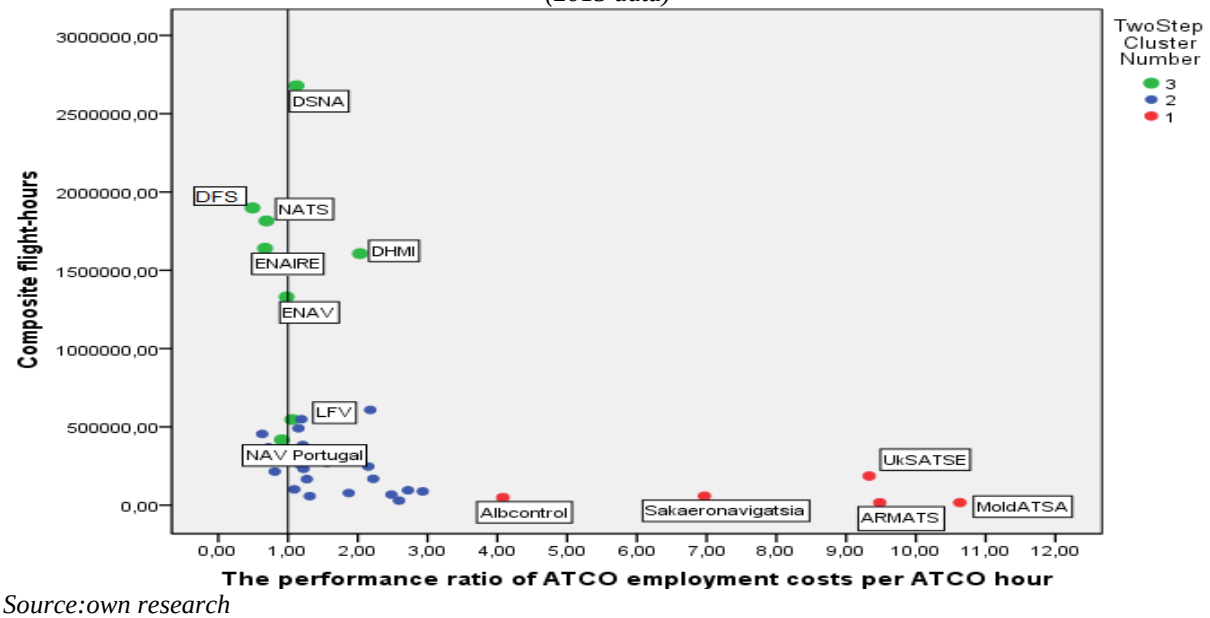


Cluster	2	3	1
Size	64.9% (24)	21.6% (8)	13.5% (5)
Features importance =1	ATCO costs 1.54	ATCO costs 0.99	ATCO costs 8.10
importance =0,67	Composite flight-hours 256.472.79	Composite flight-hours 1.491.676.88	Composite flight-hours 65.181.20
importance =0,49	ATCO productivity 0.96	ATCO productivity 1.09	ATCO productivity 0.30
importance =0,45	Support cost ratio 0.89	Support cost ratio 1.11	Support cost ratio 0.44

Source: own research

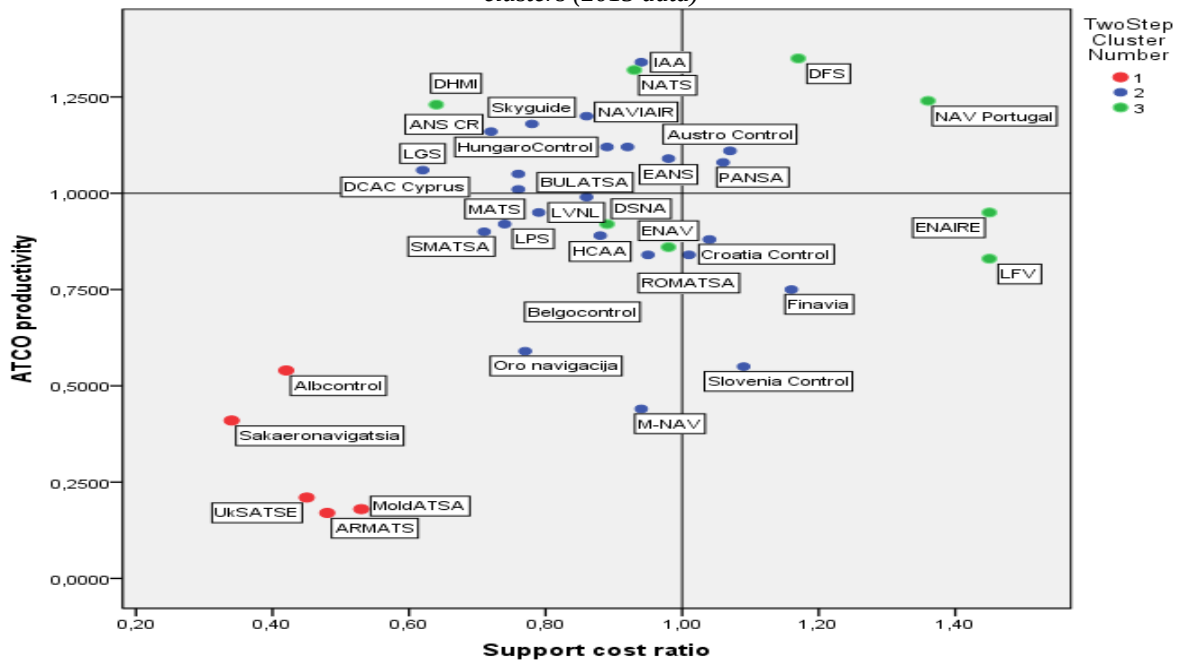
The analysis produced three clusters; cluster 1 represented by 5 ANSPs, cluster 2 represented by 24 ANSPs and cluster 3 represented by 8 ANSPs. From the input features, ATCO employment cost per ATCO hour was found as the most important for clustering, followed by composite flight hours, ATCO – hour productivity and support cost ratio. The results indicate that on average cluster 1 as a whole is better than the pan-European level in ATCO employment costs as well as the most of ANSPs in cluster 2. Cluster 3, as a whole, characterizes average values of ATCO hour-productivity and support cost ratios better (on average) than the respective pan-European values. In Figures 2 and 3, the respective two-dimensional mapping according to the input features is depicted. The line equal to 1 indicates the respective pan-European value(s).

Figure 2: The first two-dimensional mapping of 37 European air navigation service providers in three clusters (2015 data)



Source:own research

Figure 3: The second two-dimensional mapping of 37 European air navigation service providers in three clusters (2015 data)



Source: own research

Cluster 1, consisting of Albocontrol (in Albania), ARMATS (in Armenia), MoldATSA (Moldavia), UkSATSE (Ukraine) and Sakaeronavigatsia (Georgia) clearly demonstrates the distance of these European air navigation service providers against the rest of Europe, mainly in terms of ATCO employment cost per ATCO hour. The results mean that the price of air traffic controllers´ labour in these countries is extremely low. However, the overall financial cost-effectiveness in the provision of air navigation services in the countries of cluster 1 is below the pan-European level, with the exception of Moldavia which is only slightly better than the pan-European value. To improve the support cost ratio, the air navigation service providers in cluster 1 are expected to go through more radical managerial and structural reforms. In this context it ought to be stressed that the countries/providers included in cluster 1 are not explicitly covered by the SES legislation, although Albania is a part of the European Common Aviation Area and Moldavia and Georgia as well signed a Common Aviation Area Agreement with the EU. Regarding the performance of air navigation service providers in cluster 1 expressed in composite flight hours, all countries are among the providers with lower values of the indicator if we compare it with the biggest European players in cluster 3. Overall socio-economic development in these countries could spur the values of composite flight hours due to the functioning of several demand factors (income, preferences, demography, business opportunities etc.). It is remarkable that the Ukraine with its huge airspace size comparable with France or Turkey is way off with regard to the output expressed in composite flight hours. Economic and political integration of the Ukraine towards the EU, together with its subsequent socio-economic progress could enlarge a more integrated European airspace with a positive impact on the European airspace´ s competitiveness in global aviation. Such airspace more integrated with the rest of Europe would provide new alternative routes for airspace users. Further interesting findings generated by clustering is seen by us in the composition of Cluster 3 comprised of DSNA (France), DFS (Germany), ENAIRE (Spain), NATS (Great Britain), ENAV (Italy), NAV Portugal, LFV (Sweden) and DHMI (Turkey). Within the cluster, the Big(gest) Cinque of European ANSPs

can be found (GB, France, Italy, Germany and Spain). Moreover, the members of cluster 3 are differently spread around the pan-European values of ATCO productivity and support cost ratio as it is depicted in Figure 4. This finding confirms not only the internal diversity within this cluster, but also a complexity of the mission to de-fragment the European airspace as well. Another interesting piece of evidence is that the Big(gest) Cinque ANSPs are among the providers which did not achieve the pan-European levels of financial cost-effectiveness in 2015 (Table 1), while DHMI (Turkey) belonged to the group of cost-efficient providers. Cluster 2 as a whole is characterized by lower levels of composite flight hours´ indicator in comparison with cluster 3 and the indicator of ATCO employment costs per ATCO hour better than the pan-European value in the majority of observed cases.

If we overlap the results of cluster analysis with the assignment of air navigation service providers to the three generated clusters, the members of the same FAB are allocated in different clusters (cluster 2 and cluster 3) with the exception of South-West FAB members belonging to cluster 3. It proves the complexity of European airspace fragmentation in terms of crucial economic parameters of European ANSPs. To visualise the results of cluster analysis more, we elaborated the grid of European air navigation service providers within which they are differentiated according to the results of financial cost-effectiveness and its three influencing components in 2015 included in cluster analysis; and according to the assignment of providers to the generated three clusters as well (clusters coloured).

Table 1: The grid of European air navigation service providers 2015: generated clusters vs financial cost-effectiveness result (and its components)

Better than the Pan-European financial cost-effectiveness	Better in all three components	**PANSA**
	Better in ATCO employment costs per ATCO hour and support cost ratio	**Croatia, Finavia**, **LFV**, **ROMATSA**
	Better in ATCO employment costs per ATCO hour and ATCO productivity	**ANS CR, Avinor, DCAC Cyprus**, DHMI. **EANS, Hungarocontrol, IAA, LGS, MATS, NAVIAIR**
	Better in ATCO productivity and support cost ratio	**NAV Portugal**
	Better in ATCO productivity	none
	Better in ATCO employment costs per ATCO hour	**Bulatsa, HCAA, M-NAV**, **Moldatsa**, **Oro Navigacija, SMATSA**
	Better in support cost ratio	none
Worse than the Pan-European financial cost-effectiveness	Worse in all three components	**Belgocontrol**, **ENAV**, **LVNL**
	Worse in ATCO employment costs per ATCO hour and support cost ratio	**NATS**, **Skyguide**
	Worse in ATCO employment costs per ATCO hour and ATCO productivity	**ENAIRE**
	Worse in ATCO productivity and support cost ratio	**Albocontrol, ARMATS, DSNA, LPS**, **Sakaeronavigatsia, UkSatse**
	Worse in ATCO productivity	**Slovenia Control**
	Worse in ATCO employment costs per ATCO hour	**AustroControl**, **DFS**
	Worse in support cost ratio	None

Source: own elaboration based on Eurocontrol (2017) data and own cluster analysis

The grid confirms a considerable diversity which exists among European ANSPs, even within the generated clusters. This means that three multiplicative influencing components of financial cost-effectiveness through which the clusters were generated had different impacts

on the overall financial cost-effectiveness of particular European ANSPs. From this point of view, Cluster 1 is the most homogenous one, not only with regard to the non-coverage of countries/providers within the cluster by the Single European Sky legislation, but also with regard to the results of their financial cost-effectiveness indicator (which was worse than pan-European value in four of five countries within the cluster, in one case the result is slightly better than the Pan-European value). Interestingly, in the above-mentioned four cases in cluster 1, the reasons of the inefficiency stem from the same drivers - ATCO hour-productivity and support cost ratio. Just these drivers may play a crucial role in the potential integration of these countries into the SES policy. In cluster 3, DHMI can be found although Turkey is not covered by the SES legislation. It at least theoretically points out to the potential of Turkey to be integrated more closely to the single aviation market of the European Union - enlarging in this way the integrated European airspace under the SES legislation as well. On the other hand, DHMI parameters of financial cost-effectiveness reveal the competitiveness of DHMI´s airspace against the rivals in cluster 3 and against the SES airspace(s) whether the option not to be integrated within the EU will be chosen by the players (Turkey and the EU). The competitiveness of DHMI is supported by the geographical location of Turkey (the Middle East) which is among aviation emerging markets providing alternative to "historic" routes in air transportation, mainly long-haul ones. The external aviation policy of the EU ought to consider both above-mentioned policy´s options. The drivers of financial cost-effectiveness results within cluster 3 are miscellaneous what confirms that even the big players in European airspace are very different each other with different drivers of their financial (in)efficiencies. No evident drivers of efficiency or inefficiency, which would be common for all efficient (or inefficient) providers within the cluster, can be strictly addressed. Cluster 2 as the most numerous among the three generated clusters is noted by diverse dimensions of economic fragmentation within the group which are seen by us in different reasons (drivers) of efficiency or inefficiency. This result also raises a question about the suitability of flat versus tailor-made policies of the European Commission in the issues of Single European Sky in future.

4. Conclusion

The cluster analysis of 37 ANSPs in Europe we performed reveals that there still is persisting economic fragmentation of the European airspace in 2015 adversely impacting on global competitiveness of European aviation. Economic fragmentation (together with political fragmentation) makes the process of European airspace integration intricate. The clusters as well as the composition of clusters we identified point to different economic drivers of financial cost-efficiency of European ANSPs. This supports an idea about more tailor-made actions of the European Commission in the issues of the Single European Sky in the future what could be a more suitable alternative against the flat measures adopted so far.
Simply, fragmentation is still an issue.

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EFFECTS OF GLOBALIZATION ON EMPLOYMENT IN SLOVAK AGRICULTURE

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Abstract. The aging population and increase in differences between rural and urban areas are global and serious issue in all EU countries. The differences between member states depend on the history and level of economic development. In the paper we measure the effect of CAP implementation on rural areas with respect to employment in Slovak agriculture. Based on individual farm data over the period 1994-2014 we analyse inputs and outputs of agricultural production. The decrease in employment in agriculture is a result of technological progress, changes in individual family preferences and low income in comparison to other sectors of economy. In Slovakia also history of large farms plays an important role. In countries with dominating small family farms the decrease in employment is significantly lower than in countries with large farms. Therefore in Slovakia the improvement of employment in rural areas falls behind.

Keywords: employment, agriculture, Common agricultural policy, individual farms

JEL Classification: J43, Q13, Q14, Q18

1. Introduction

Slovak agriculture is currently typical for decrease in economic importance on total GDP, decrease in agricultural production, negative balance of trade in agricultural products, less employment in primary production and food processing as well as negative effects on rural areas (Tóth, 2014). Although there have been changes due to privatization after 1989 and EU accession in 2004, still large farms dominate. Based on farm census in 2010 there have been 26 463 farms in Slovakia, but 75% of UAA was cultivated by less than 10% of farms with legal status of a cooperative, joint stock company or limited liability company. Serenčéš et al. analysed by ratio analysis situation and development of agricultural production in Slovakia (Serenčéš et al., 2016). In the observed period 2009-2013 using FADN data they focused on farm net income and farm area. In comparison to other EU countries the average farm size is significantly higher. In 2013 the average area of land per farm in the Czech Republic is 232,93 ha, in Germany 86,63 ha, in France 85,87 ha, in Hungary 45,02 ha, in Netherlands 34,61 ha, in Austria 32,39 ha, in Poland 19,11 ha and in Slovak Republic 594,82 ha.

There has always been significant political tradition towards small farm protection and support in Europe (Mayfield, 1996). Many arguments have been used to support this attitude covering aspects like social importance and environmental benefits. His study concludes, that small farms seems to be more connected to local rural economy than large farms and small

farms do more support rural areas mainly in indirect employment. Therefore, small farms deserve more attention and support focused on rural development. Role of agriculture in economic development and rural policy support for small farmers in comparison with large agriculture are in centre of long and controversial discussion. Small agriculture has similar potential to stimulate agricultural production growth than large farming. Short supply chains cover mainly informal sectors and generate more jobs than holding agriculture. Focus of agricultural and land policy on small food producers and a complex integrated rural development policy is therefore needed not only due to social equality, but also due to economic development support (Mellor et al., 2017).

A study (Keijiro & Yanyan, 2016) analyses farms in Asia, which are dominantly small. Obviously small farm use labour intensive production methods. Therefore, the question arises whether they can survive the pressure in form of steep salary increase in majority of Asia countries. Results also show, that the productivity of small farms did go down while the productivity of large farm did grow which is a disadvantage of small farm. Study concludes that if no policy action will be taken, Asia will lose comparative advantage in agriculture and in the future, will turn into net cereals importer. Alexandri, et al. studied the role of small farm in economy of rural area and farmers households (Alexandri et al., 2015). Romania is a country with the highest number of farms in the role of family subsistence in the EU. Out of 3.7 mil. of farms in Romania 3,3 mil. are low income farms due to extremely low production. Although these small farms play a minor role on the market, they are important for the rural areas, because they produce food and generate social security for households and contribute to environment in form of using traditional production methods. Key findings are strong diversification of production of small farms in comparison to large farms, which are much more specialised. Analysis of food consumption behaviour shows high proportion of self-sufficiency in majority of food products, lower food diversity in comparison with urban areas and lower price of calories of rural households.

Technical efficiency in agriculture is (Bojnec et al., 2014) significantly linked to subsidies, average UAA of the farm specialisation in agriculture. Foreign direct investments have no significant effect. Reforms and institutional development, vide privatization and price liberalisation and income gap between urban and rural areas positively correlate with technical efficiency in agriculture. Increase in technical efficiency in agriculture and rural economy development is considered for a strategy to increase standard of living in agriculture and rural areas. Technical efficiency analysis was studied on a sample of farms in Wisconsin (Chavas & Aliber, 1993) Results show the existence significant economy of scale in very small farms and some major economy loses on large agricultural holdings. The study also concludes, that majority of farms benefit in form of economy of scale but these benefits have the tendency to disappear with the increase in the size of the farm. Empirical evidence shows significant link between financial structure and performance and technical efficiency.

Possibilities to decrease labour input by technology were tested on large farms in less favoured areas (Stolbova & Micova, 2012). Large farms in Czech Republic were more effective than small. So was the diversification towards non-agricultural activities in large farms. Focus and effects of policy measures related to LFA was analysed on small and large farms. The study also evaluates the economic results of small and large farms. Results show, that subsidies in LFA should be linked to the farm area and should go down per hectare in large farms. Authors conclude that such a regulation would have no negative effect on the net value added per 1 annual working unit. Wang et al. analyse main factors, which did lead to the replacement of labour by technology in rural China in 1984 to 2012 using panel data on

province level (Wang et al., 2012). Analysis shows a tremendous increase in real wages in agriculture mainly after 2003 in comparison with relatively stable real price of farm technology equipment. Relative price of technology to agricultural labour did lead to sharp improvement in farm technology. Substitution elasticity between labour and equipment was high in case of some agricultural products, which did lead to replacement of labour by technology. Key reason for low efficiency of Slovak agriculture is low value added which is compensated by public funds in form of subsidies. Subsidies in Slovak agriculture are mainly linked to UAA of the farm and without subsidies farms in Slovakia generate loss (Ferenczi Vaňová et al., 2017). According to (Serenčéš & Tóth, 2012) up to 90% of net value added is used to cover the labour cost. The question is whether this is due to high labour cost or generally low value added in Slovak agriculture. Comparison of Slovak agriculture with other EU countries in 2013 (Serenčéš et al., 2016) shows, that Slovak agriculture has low level of total agricultural production per hectare (1024,98 EUR), low net value added per hectare (296,02 EUR) and as the only country out of EU 28 Slovakia records negative farm net income.

2. Methodology

The data used for the analysis are from the database of Ministry of Agriculture and Rural Development of the Slovak Republic and cover the period 1994 - 2014. We use individual farm data for all legal entities (except small family farms). From the dataset the following farms were excluded: farms with negative equity (liabilities exceeding total assets) over the observed period and farms with missing data. On average 1300 farms per each year were analysed covering more than 60% of UAA in Slovakia. Due to the observed period and significant changes in the structure of farms we did not analyse panel data. Before 1989 only cooperatives and state-owned companies existed in Slovak agriculture. During the transformation and privatization process of the national economy, the former legal structure of agricultural sector has been gradually changed. Private companies (Ltd., JSC.) started to exist and the number of independent farmers in the primary sector increased rapidly in the first years of transition. Structural changes have led to a decrease of the share of cooperatives, and to an increase in the number of private companies.

Table 1: Farms structure in the analysis (private companies and cooperatives) in period 1994-2014

Indicator/Years	**1994**	**1998**	**2002**	**2006**	**2010**	**2014**	**Average**
Total farms	1098	1227	1201	1352	1281	1457	1281,9
Private companies (PC)	70	415	561	787	777	970	616,6
Cooperatives	1028	812	640	565	504	487	665,3
PC in %	6,4 %	33,8 %	46,7 %	58,2 %	60,7 %	66,6 %	46,8 %
Cooperatives in %	93,6 %	66,2 %	53,3 %	41,8 %	39,3 %	33,4 %	53.2 %

Source: own calculation based data of Ministry of Agriculture and Rural Development of Slovak Republic

We analysed following ratios to compare the performance and effect of large farms on Slovak rural areas:

1. Employees per 100 ha = AWU[2] * 100/UAA
2. Salary in EUR = Annual Gross Wage /AWU
3. Productivity in EUR/ha = Total Revenue/AWU

[1] UAA - Utilised Agricultural Area

[2] AWU - Annual Work Unit - corresponds to the work performed by one person on full-time

3. Results

3.1 Employment in Agriculture

Currently in all EU member states (except for Ireland and Malta) the employment in agriculture is decreasing. Compared with the base year 2005 on average for all member states the labour force input is on the level of 73.50% of 2005 level. In Eurozone countries, the level is 81.92%.

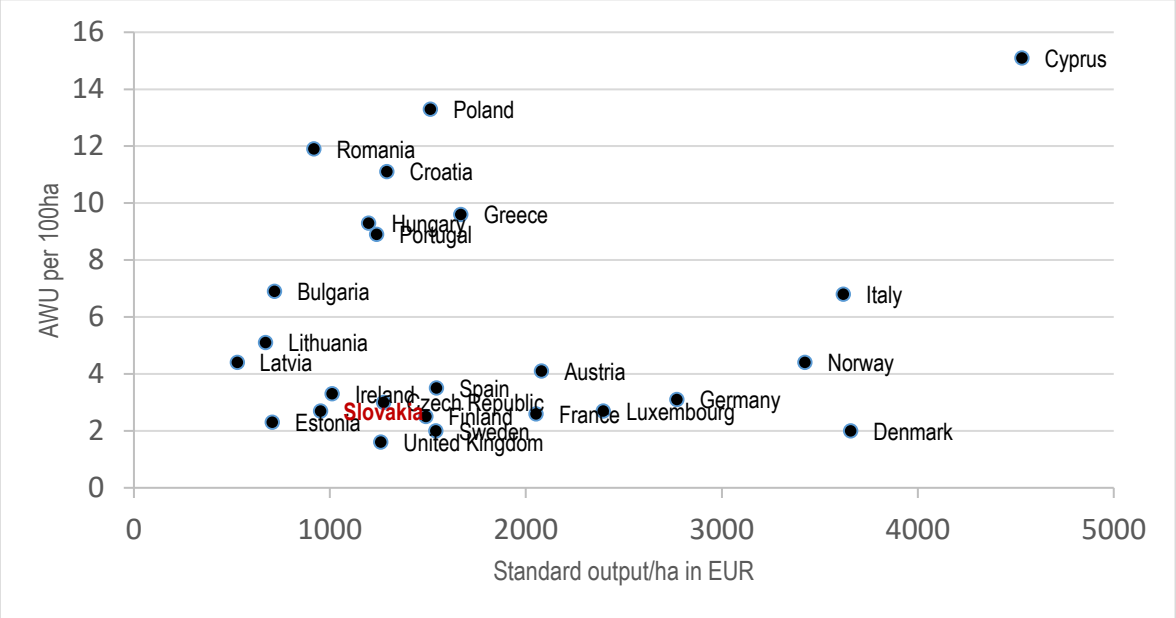
Table 2: Total Labor force input 2005=100%

GEO/TIME	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
European Union (28 countries)	92,96	90,72	87,84	80,97	78,84	78,48	77,63	76,23	74,61	73,5
Euro area (19 countries)	95,53	92,84	88,63	88	85,92	84,97	83,33	82,71	82,23	81,92
Bulgaria	78,93	74,25	69,57	64,89	59,99	55,46	51,28	47,49	44,13	41
Czech Republic	91,24	86,71	82,33	78,16	76,29	76,01	75,5	75,36	75,29	75,29
Denmark	93,48	92,37	87,6	86,17	82,77	83,4	83,8	85,99	87,53	88,41
Germany	95,13	93,22	91,35	89,6	88,83	88,16	86,34	86,51	85,14	84,71
Hungary	87,94	82,36	84,69	85,05	83,67	82,96	85,1	88,64	84,62	84,23
Malta	103,45	103,45	103,45	120,69	120,69	120,69	123,15	123,15	124,24	124,24
Netherlands	96,98	94,71	94,09	92,55	91,75	90,15	91,2	89,66	89,77	87,29
Austria	92,72	90,5	89,58	87,2	86,04	85,69	84,82	83,15	82,07	80,95
Poland	100,32	100,32	96,59	83,55	83,55	83,55	84,52	84,52	84,52	84,52
Portugal	94,78	92,62	91,16	83,48	80,68	79,9	75,91	71,54	69,02	64,57
Romania	84,94	82,9	82,9	63,14	59,01	60,59	60,25	55,2	49,81	45,96
Slovenia	93,24	92,38	89,06	85,53	86,61	89,73	91,9	90,85	90,37	88,96
Slovakia	92,41	91,4	87,04	56,78	58,1	57,79	54,86	54,55	49,49	47,57
Finland	94,49	92,2	90,33	85,34	84,41	82,64	78,9	84,41	82,54	79,31
Sweden	90,74	89,21	87,79	86,38	84,95	83,51	82,12	80,74	79,39	78,06
United Kingdom	95,62	94,61	93,28	95,83	97,48	97,56	96,61	96,69	97,28	97,12

Source: own calculation based data of EUROSTAT

Out of V4 countries is the decrease in employment the highest in Slovakia (47.57% of 2005 level), followed by Czech Republic, Poland and the smallest decrease in employment was recorded in Hungary. Labour input is one of the three main production factors followed by Land and Capital. Decrease in labour force input by the same level of production results in higher productivity. But if we link together (Figure 1) AWU per 100 ha and Standard Output/ha in EUR (crop or livestock) Slovakia has as of 2014 employment (AWU per 100ha) comparable with countries like France, Luxembourg, Germany but the Standard output on the level of less developed countries (Romania and Bulgaria). The standard output/ha in EUR in Slovakia is one of the lowest out of EU countries. The decrease in employment in Slovakia was not followed by increase in productivity. Slovakia is behind old member states in value of production per hectare and also all V4 countries have higher standard output per hectare.

Figure 1: Employment vs. production in year 2014



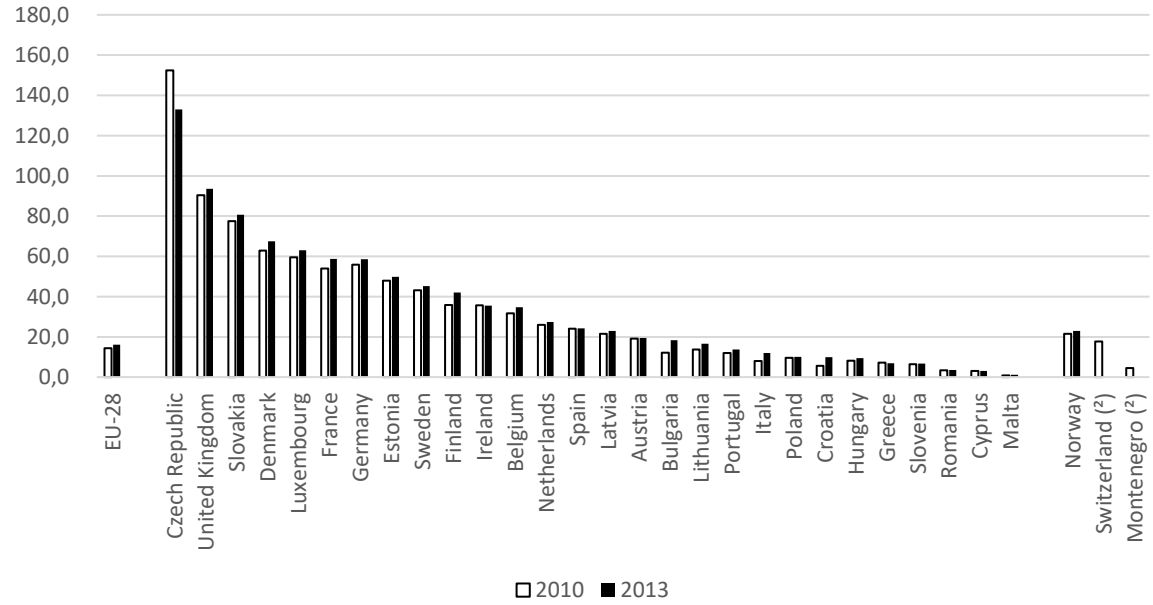
Source: own calculation based EUROSTAT

From this we formulate two research questions:

1. Why such a low production per ha?
2. Why such a sharp decrease in employment?

To answer both research questions we have to focus on the structure of farms in Slovakia first. According to Eurostat, the Slovak Republic is third place (behind Czech Republic and United Kingdom) regard to average utilised agricultural area per holding (Figure 2). Compared to EU-28 in Slovakia average UAA per farm is five times higher.

Figure 2: Average utilised agricultural area per holding, 2010 and 2013 in hectares



Source: EUROSTAT (online data code: ef_kvaareg)

3.2 Employment in Slovak Agriculture

Large farms in combination with improved technology result to a decrease of employment in Slovakia. In employment hired workforce dominates and hired workers receive salary. In table 3 we compare AWU per 100 ha, Gross salary per year and AWU and farm total revenues per AWU in EUR. Over the observed period 1994-2014 gross salaries increased by 300% while revenues per AWU by 546% (comparing median values). Gross salary in agriculture remains low compared to General average salary in Slovakia (80% in 2014).

Table 3: Employees, Salary and Productivity of Slovak farms in period 1994-2014

Year	Count	AWU per 100 ha			Salary/AWU in EUR			Total Revenue/AWU in EUR		
		LQ*	Median	UQ**	LQ	Median	UQ	LQ	Median	UQ
1994	1077	5,4	7	9,1	1789,2	2014	2286,8	7523,8	9467,3	12590,3
1995	1108	4,9	6,7	8,6	1956,2	2247,5	2587,3	8287,5	10674	14011,2
1996	1150	4,3	6,1	8	2227,8	2556,2	2966,3	9412,4	12595,7	16633,8
1997	1206	3,9	5,7	7,8	2496,8	2863	3318,1	10993,5	14703,9	20031,9
1998	1215	3,3	5	7,1	2731,9	3123,7	3610,3	11646,2	15442,8	21016,6
1999	1175	2,7	4,4	6,3	2910,3	3357,9	3838,6	12600,4	16964,9	23257,9
2000	1175	2,5	4	5,8	3065,8	3546,1	4115,5	14488,8	19595,6	28151,2
2001	1190	2,2	3,7	5,4	3317,4	3872,5	4532,8	16815,4	22724,3	32418,5
2002	1196	2,1	3,6	5,3	3496,7	4072,2	4775,4	17367,1	24012,7	34848,3
2003	1280	1,7	3,2	5	3525,2	4229,6	4979,1	18116,3	25920,9	37990,4
2004	1238	1,8	3,1	5	3711,4	4599,1	5456,6	22650,5	31298,2	46427,2
2005	1367	1,6	3	4,9	3900,3	4922,2	5887,1	23979	33517,2	50270,7
2006	1350	1,6	2,8	4,6	4159,2	5288,4	6329,6	26840,6	36620,6	54869,6
2007	1333	1,6	2,7	4,3	4717,2	5982,1	7072,6	28710,3	40691,7	60458,3
2008	1286	1,5	2,6	4,1	5125,9	6581,9	7893	32762,4	47285,4	70510,5
2009	1341	1,3	2,3	3,7	5070,9	6515,8	7948,5	28426,7	41172,7	64910,5
2010	1277	1,2	2,2	3,5	5349,6	6817,4	8319,2	31824,4	46348,7	73614,8
2011	1381	1,1	2	3,3	5435	7280,9	9020,8	35629,5	56511,7	87183,4
2012	1448	1	1,9	3,1	5366,8	7486,9	9266	36793,8	58613,8	95940,4
2013	1444	1	2	3,1	5326,9	7673,1	9535,3	36246,1	57135,7	89272,7
2014	1449	1,1	2	3,1	5440	8017,5	9945,8	37954,6	61173,3	98005,6

Source: own calculation based data of Ministry of Agriculture and Rural Development of the Slovak Republic
** lower quartile, percentile 25*
*** upper quartile, percentile 75*

Comparing decrease in employment and increase in revenues per AWU we conclude, that the increase in productivity was only due to decrease in number of employment in Slovak agriculture and not due to increase in animal or crop production generally. In Slovakia, there are 53 thousand employees currently employed comparing with 203 thousand in 1994. This represents and decrease by 5 employees (AWU) per 100 ha over the observed period.

4. Conclusion

Slovakia has the third highest UAA per farm in EU and agriculture is dominated by large farms with 75% share on total land (UAA). Large farm use hired labour. Since 2005 in Slovak agriculture employment did decrease the most out of all EU countries. One of the main reason

for this is the farm size in combination with EU Common Agricultural Policy. Farms receive subsidies which are mainly linked to UAA of the farm. Higher UAA means higher subsidies in total. There is no motivation to increase the production because of decoupling applied in CAP. Large farms in Slovakia tend to decrease the cost by decreasing Labour input. In comparison to countries with small farms the decrease in employment is much higher in Slovakia. Small farms cannot rely on subsidies only but they need also real agricultural production. Large farm on other hand with (1 200 hectares is the average size of large farms in Slovakia) receive only in form of subsidies a significant amount of money (in Slovakia 282€/ha on average) and tend to replace labour by technology much more than small farms.

In countries with small farms there are much more CAP beneficiaries mostly in rural areas than in countries with large farms. Rural development and rural economy suffers more in Slovakia than in countries with small farms. Current labour input per 100 ha in Slovakia is comparable to Germany, France, Luxembourg, Denmark, but Standard Output is the lowest even compared to V4 countries. This is mainly due to the size of the farm measured by UAA and ownership structure, which is based on private companies with a limited number of owners.

Large farms in Slovakia behave rationally and try to benefit from the current CAP. In the production, they focus more on crop than on animal production which is much more labour intensive. In crop production, the large farms focus on products with low value added and crops, where intensive large farm technology can be used. Therefore, Slovakia crop production is focused on basic commodities and products with low value added. Large farms benefit from economy of scale. Standard Output per ha (excluding direct payments) in Slovakia is comparable with Romania, Bulgaria, Ireland and is lower than other V4 countries. We conclude that support for young farmers and small farms would result into higher employment and increase in value added of agricultural production in Slovakia. Rural economy would benefit in form of higher or constant employment, local food consumption and development of other sectors in rural areas.

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MIGRATION OF WORKFORCE IN THE WORK MARKET AS A SOCIO-ECONOMIC RESULT OF GLOBALIZATION

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Abstract. Migration is generally considered to be one of the characteristics of globalization processes in the world. Globalization also applies to the movement of people as free labour force, the global labour market is gaining importance. Opening the labour market increases employment opportunities, geographical mobility is being promoted. Qualification and migration - this link is one of the most frequently discussed migratory issues on recent years. The mobility of highly qualified workers increases, highly qualified people strengthen the economy and economic stability of the target countries. On the other hand, migration brings a negative element for home countries, which is based mainly on the emigration of skilled labour force abroad, both in the category of university educated people as well as the category shortage of blue-collar professions. Nowadays the Slovak Republic is recording a skilled force labour market weakening, which would also be needed at home. Employers feel a lack of free labour force and are increasingly searching for workers abroad. The current demographic development shows that the Slovak labour market as well as the social security system are largely dependent on the inflow of human capital from abroad. Due to the labour migration of the labour market, the internal environment of enterprises is changing towards multiculturalism and multilingualism. Transnational working teams are being set up in organizations, the requirement of the so called global managers is coming to the fore, as new approaches to leadership and management are required.

Keywords: globalization, labour market, free movement, labour migration, skilled workforce

JEL Classification: F66, J21, J61, J62, M51

1. Introduction

The mobility of people is currently rising sharply, making it one of the determining global issues of 21st century. People migrate for various reasons. Most often, these causes are divided into emigration and immigration factors. As emigration factors we can mention natural disasters and diseases, economic factors (low standard of living, poverty), political (political instability, conflicts), religious reasons. “In addition to migration based on social reasons, such as family reunification or marriage to a Slovak citizen, the most significant component of legal migration is currently migration for work and study.” (IOM, 2017) Free jobs act as one of the immigration factors.

There are negative consequences as a result of the migration of people in the emigration areas: loss of population, changing population structure, changes in population reproduction, indirect population loss, economic consequences of emigration. On the contrary, immigration

areas are gaining population predominantly in reproductive and productive age, are eliminated the cost of education of the population, but there may be problems of assimilating this population to new conditions. Often, several negative phenomena are linked to immigration groups.

The foreigners (EU nationals and third country nationals) in population of Slovak Republic compared to other EU countries have low representation. Today the foreigners make up 1.72 percent of population and their number is slowly, yet continuously increasing. (IOM, 2017) In 2016, there were about 93,247 what is 8,460 more foreigners living in Slovakia than the year before - this means an increase of 10 percent. According the Statistical Overview of Legal and Illegal Migration in the Slovak Republic to the 1st half of 2017 the number of foreigners in the Slovak Republic raised to 97,934. (Bureau of Border and Alien Police of the Presidium of the Police Force, 2017)

2. Labour mobility and qualification

„The process of globalization influences not only economic development and international trade of the countries but has also positive impact on the labour market and increases cross-border mobility of labour force." (Bajzík, 2016) People can look for appropriate labour positions in cross border scene. Qualified and skilled employees are fleeing for better opportunities abroad, where they can find a better job and perhaps a better life. The reasons for labour migration are different, but most often there are economic reasons in connection with the inability to find a job in home country. Better salaries and many employee benefits (e.g. various recruitment benefits, provision of council flats, etc.) also attract many people.

The labour market, which is closely linked to the market for other factors of production, has certain specificities compared to the markets for other factors of production. Particularly important attributes of the labour market can be denoted both the educational structure and the mobility of the workforce.

Today migration related to the opening of borders as well as the emergence of a knowledge economy is one of the characteristic attributes of globalization. This results in an increasing demand for skilled workforce, leading to a boom of trade with human capital and so the demand for a skilled workforce is on a global scale. Well-educated people and professionals are moving to high-developed countries, which has a serious negative impact in the form of brain drain from countries where they are most needed. (Juríčková, 2011) This is also the case of Slovakia, for example in the health sector in connection with the departure of medical staff. Nurses leave for Germany, Austria, the United Kingdom, and the Arab countries, too. According to the analysis of the Stage of Medical Staff in the Slovak Republic prepared by the Institute of Health Policy of the Ministry of Health of the Slovak Republic, there are missing 1925 nurses in Slovakia. (Ministry of Health of the Slovak Republic, 2017) According to the statements of the nurses themselves, it is still several times, because one nurse can not provide the health care to about 30 patients. The loss of medical staff is also due to the departure of doctors, especially to the Czech Republic, Germany, England and Austria. The number of doctors working abroad is increasing, but currently the exact number of how many nurses and other healthcare workers have gone abroad, is not officially available in Slovakia. Foreign employers attract high earnings for employees and offer a range of benefits such as corporate retirement benefits, nursery for employees directly in the hospital area, assistance in finding housing, a financial transfer allowance, or special bonuses and benefits for nurses. For example, the study of Goh & Lopez (2016) is trying to explore the job

satisfaction level of migrant nurses working in a multicultural society and, more specifically, the relationship between their job satisfaction levels, work environment, their intentions to leave and the predictors of their intentions to leave.

We can conclude that the departure of experts from the country is a negative phenomenon. „International migration influences economies of both the home and the host country. Some countries perceive immigration as a threat and consider limitations to their social security system to protect the domestic economy." (Tepperova et al., 2017) The home countries suffer from the departure of skilled workers twice. This is reflected by the fact that the country invests considerable funds in educating its people, but their benefits are taken up by the foreign country, it means the country, in which people use their education to carry out their work. Also, the Slovak Republic, which invested in the education of its future workers, has lost and there is no refund system for education in the EU market. In addition to the lost investment in human capital in the form of education, there is also a loss of potential income of both economic and social nature, which is considerable in the case of experts (e.g. tax revenues, establishment of new companies, representation of the country). As stated by Stachová (2014), it can be said that migration of workers should be viewed from different angles, both as a challenge and an advantage for the economy of the country, but also as a potential threat to the domestic labour market which may lead to the situation of missing the necessary qualified staff.

The problem in departure of skilled workers occurs if there is not enough of them in their home country. Then, many companies feel the lack of suitable labour workforce and the employers are not able to occupy their positions in the long term. The country does not have enough free and skilled workforce, and the departure of experts causes that the missing labour force with its capabilities supports another economy and remains unfilled hole afterwards „One of the quickest and most effective measures to solve the problem with lack of suitable labour force can be the employment of skilled and educated labour migrants and foreign students." (Treľová, 2016)

Slovak HR professionals also clearly agree that companies suffer from a lack of skilled workforce. It is in a number of departments, especially in the field of IT, technically focused industries, engineering, but also in the manufacturing sector that is linked to the automotive segment or in logistics and distribution companies. (TASR, 2015) In these areas, apart from Slovak companies, there are many multinational companies that are a very widespread employer. It is, for example, about German investors in Slovakia, such as Volkswagen, Siemens s.r.o., Kaufland, etc. (Milošovičová & Paškrtová, 2016) The presence of multinational companies in the high external openness of the Slovak economy also significantly influences the labour market.

Due to the need for suitable labour force it promotes the importation of foreign labour force (eg. the Ukraine, Romania, Bulgaria, Hungary). The employers are increasingly interested in foreign employees and are looking for people in the neighboring countries. It is not interest only in foreign workers from other European countries, but people from countries outside the EU also find their employment on the Slovak labour market. These are especially migrants who obtain a work permit in Slovakia. Although it is not yet possible to talk about the enormous use of this option to tackle labour shortage, it may not be the case in the future. This is related to the demographic development and decrease of unemployment in the Slovak Republic. If unemployment in Slovakia will continue to decline (Table 1), we expect this to happen.

Table 1: Registered unemployment rate

	July 2013	July 2014	July 2015	July 2016	July 2017
Registered unemployment rate (%)	13,99	12,67	11,46	9,44	6,70

Source: own processing according to statistical data from the Center for Labor, Social Affairs and Family

The number of foreign workers in 2016 in the Slovak Republic represented 35,090 (24,054 EU nationals and 11,036 third country nationals). In 2016, foreigners from more than 120 countries were employed in Slovakia, most of Romania (7,394), Serbia (5,140), Czech Republic (4,134), Hungary (3,696) and Poland (3,204). (Central Office of Labour, Social Affairs and Family, 2017)

3. Multicultural working environment

The internal environment of enterprises is changing as a result of labour migration on the labour market. As states Szarková (2011), the companies employ qualified professionals from diverse cultural backgrounds with the knowledge of different languages and it gradually begins to change the internal environment towards the interculturality and multilingualism. Currently this process continues and affects practically all internal processes.

In a multicultural working environment employees communicate with other employees whose national cultures differ, overlap and even intertwine. „Between corporate employees of different ethnic and cultural provenance, various crosscultural interactions may occur. They may have positive and negative effects for mutual cooperation." (Przytuła, 2016) Przytuła further states that „negative outcomes of cultural diversity and specified barriers in multicultural teams may include increased uncertainty connected with a higher level of diversity, problems in agreeing on activities and meanings, problems and errors in communication which hinder common understanding. Multicultural teams have greater potential for misunderstandings and conflict, which are exacerbated if team members are dispersed geographically and across time zones." Language and communication difficulties, trust, motivation and personal relationships are the obstacles to successful sharing of knowledge in multicultural teams.

Organizations deal with intercultural diversity every day in communicating with their intercultural partners or working in multicultural teams. „Managers and employees of culturally diverse organizations not only have to deal with new procedures, technology andpolicies, but also with new cultural and communication situations." (Benčiková & Poliak, 2016) Also Mešková (2012) points out the importance of intercultural competences for managers, suggesting they represent an important tool in their work. „It is inevitable to consider possibilities of developing intercultural competences within an organization by various forms of intercultural training as a process of making others to be aware of the cultural differences and teaching them how to behave and adapt to various cultural conditions and situations." (Benčiková & Poliak, 2016)

„Although globalized multicultural workplace creates specific job demands that pose unique occupational stress to individuals, some personal resources enable them to deal with these demands and to thrive." (Basinska & Rozkwitalska, 2016) Basinska & Rozkwitalska (2016) based on the results of the research, state that results demonstrate that „those individuals who thrive in the globalized workplace more frequently assess their specific job demands as challenges than hindrances. They also feel more positive than negative emotions.

Thriving people activate their personal resources such as curiosity, openness and positive attitudes all of which increase their vitality. Although more effort is needed to deal with cultural diversity in the globalized workplace, those individuals are motivated for long learning, which facilitates their occupational and personal development. Thriving people activate their personal resources to face their challenges, which, in turn, enhances their learning and personal growth."

Working in global environments is a new challenge for employees and managers. Managed well a culturally diverse workforce can enhance business performance and profitability. Thus working in global environments is a new challenge for employees and managers (Youssef & Luthans, 2012) Under the circumstances, it comes to the fore the demand for so-called „global managers" - managers with interdisciplinary knowledge, adaptable, flexible, open to change and new, untraditional ideas, managers capable of accepting cultural diversity. (Sulíková, 2008)

„Working with people from different cultures as well as providing services to clients in different countries not only increase the potential of employees and their competencies but also influence the development of the very organizations. Interpreting thriving as the experience of an individual's growth resulted from the joint of vitality and learning in a work context." (Spreitzer et al., 2005)

4. Conclusion

Opening of the labour market are increasing employment opportunities, enforces the geographical mobility. „The globalisation process gives an opportunity for migration, change of the place of residence and finding a job in other countries with suitable qualifications and skills." (Kawa, 2010)

It can be said that Slovakia is not one of the traditional final destinations for migrants. Rather it is the country whose residents used to migrate abroad for various reasons. "The position of Slovak republic in the context of the problem of migration is in the periphery, meaningthat Slovakia is more an example of a country sending people within the EU, than a country receiving people either from the other member states as from abroad." (Stachová, 2016) We think that even though the Slovak labour market is still relatively homogeneous with a small number of working foreigners, in the coming years it will be more diversified. There will be an increasing interest in foreign workers from other European countries, and also other people from outside the EU, especially migrants who obtain a work permit in Slovakia, can find work on the labour market. We can conclude that cultural diversity teams will become more common, which also requires new approaches to their management.

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PERFORMANCE ASSESSMENT FOR AGRICULTURAL MARKET IN A REGION: EVIDENCE FROM RUSSIA

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Abstract. Russian agricultural market is developing very fast now. Government is supporting it by significant investments. Many authors show that this efforts are supposed to concentrate mainly on the production. There is a lack of attention to the level of technologies and equipment used in manufacturing and in turnover, i.e. in the post-harvest handling, long-term and operational storing of agricultural products, as well as in processing, product delivery to customers, preferably using highly specialized transportation, and in consumption waste disposal. The production results achieved can be destroyed due to low-tech turnover level, and the relationship between production and consumption will not give the expected results of the agricultural production. The main hypothesis of this article is that we need to increase the level of technologies in agricultural production and bringing agricultural products to consumers, at all stages of the production-consumption relationship. So we propose to assess the market performance from the perspective of technological stages. Tis article explains the approach for the performance assessment for the agricultural market in the region.

Keywords: market performance, technological stages, state support, regional economic, domestic substitutes.

JEL Classification: L140, L190, L520

1. Introduction

In Russian local agricultural practice the issues of productivity growth and increase in production volume are discussed most often. At the same time, there is almost no attention to the level of technologies in agricultural production and bringing agricultural products to consumers, at all stages of the production-consumption relationship, - in spite of the fact that losses estimated by experts are huge, up to 40% of the reaped crop. As an example, in accordance with the official data, in 2014 losses of potatoes made 2,066 million tons that is twice more than import volume (1.045 million tons), and nearly ten times more than cumulative domestic export (0.069 million tons).

The paper is organized around the following topics. Firstly, we focus on the issues of productivity and performance assessment, taking the structure-conduct-performance paradigm. Secondly, we give a brief overview of the methodology and research design. Thirdly, the results are presented which highlight the existing and potential opportunities of agricultural market performance assessment in Russian regions.

Literature on the subject is a growing body of knowledge. In recent years, the number of papers devoted to the issues of agricultural market in emerging and developing economies has

increased substantially, including discussion on the results of productivity-enhancing reforms (Dabla-Norris et al., 2014; Rodrigues Moreira et al., 2016), on the role of agricultural knowledge and innovation system in sustainable development and value creation (Abebe et al., 2013; Trjascin, 2013), on differentiation strategies and market opportunities for agricultural products in emerging markets (Brenes et al., 2014).

Still, performance assessment for agricultural markets in developing and transition economies remains problematic for academics and practitioners. Few economics and management theorists are engaged in research that helps to understand peculiarities of performance assessment in developing countries' agribusiness (Bellon et al., 2015; Anigbogu et al., 2016), as well as in agribusiness of East European economies (Bojnec & Latruffe, 2013). Further, there is a need to unveil the basic principles surrounding performance assessment for agricultural market in a region in case of emerging economy. In order to fill some gaps within the field, this paper seeks to propose an approach to performance assessment for agricultural market in Russian region, taking local market of potatoes as a base for analysis. Nowadays, the literature on Russian agribusiness is scarce and focuses mainly on general issues of Russian agriculture during transition (Liefert & Liefert, 2012; Schierhorn et al., 2014). The paper is concluded with the section that summarizes the findings and proposes avenues of future research.

2. Results

The Term of Market performance is widely used in the economic science. In the field of industrial organization, it is widely recognized that industrial market performance is largely dependent on the current market structure, as well as the sellers and buyers behavior. R.E. Caves identified four display modes of industry market performance:

1) The economy needs to be efficient, limited resources should be allocated so that they result in the greatest possible real income.
2) The economy needs to be progressive, it should resupply production factors, improve quality and variety of products, as well as way in which of factors of production are organized.
3) The maximum employment level needs to be achieved in the economy, but not by virtue of the overabundant increase in the general price.
4) The economy needs to be fair, real income distribution between its members should satisfy their major requirements and reasonable expectations, at the same time rewarding their productive efforts.

Market performance is considered as the multi-factor phenomenon with no single indicator.

According to F. Sherer, market performance manifestation may be considered as achieving at least the following objectives:

A. Decisions about what, how much and how to produce
B. Activities of the manufacturer should be progressive,
C. Manufacturers' activities should contribute to the full utilization of resources
D. Income distribution must be fair (equitable).

We will focus on the impact of the first two points related to scientific and technical progress, which is reflected in the change of technological stages ("tenors of technology"). At the same time, we regard employment and equity of income distribution as a present constant and examine market performance from the perspective of changing tenors of technology that increase the relationship of production and consumption.

The term "tenor of technology" is perceived differently. From our point of view, this term should not be confused with the term "way of life", or with the term "socio economic structure". It is close to the term «technological stages» and thus should be understood as a complex of a certain level of technology, built on the basis of the one class of technical solutions using certain energy sources, appropriately qualified staff and adequate organization. Within a tenor of technology, a closed macro-production cycle is performed that includes production and obtaining primary resources, all stages of their conversion, as well as production of end products satisfying the corresponding type of public consumption.

Each tenor of technology is a holistic and sustainable education, within which a closed cycle, including the production and reception of primary resources, all the stages of their processing and production of a set of end products that meet the appropriate type of public consumption.

Tenors of technology are present in any economy in certain combinations. The innovation process is manifested in the progressive replacement of old technological stages by new ones. Their role and significance is not the same. Among tenors of technology a leading one always stands out, called the dominant (main) tenor of technology. Therefore, modernization of the economy is generally a process of replacement of the existing dominating tenors of technology by other tenors that can meet more precisely the requirements of today.

One can assess the extent of any tenor of technology on the basis of the changes in the particular economy, in terms of the expenditures on technological innovation made by industrial production organizations, in accordance with the periodization of technological modes of economic activity, or on the basis of volume share of products manufactured using technologies of different tenors. It seems that the criterion should be *monistic:* say, the relationship is based on the relationship between instruments of labor and labor force in the presence of energy use form is the cornerstone.

We propose less detailed, but more consecutive periodization of technological stages. Regional gross domestic product is produced *on the market*. Its creation is performed based on technologies that can be attributed to the agricultural (pre-industrial), industrial and post-industrial technological stages based on the aforementioned criteria. Therefore, *pre-industrial* technological stages are included in the first (artisanal, primitive) tenor of technology.

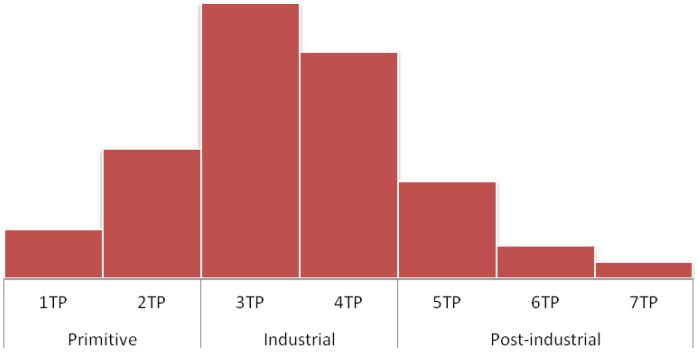
The development of technological stages is evolutionary and goes from a primitive industry where almost all products are unique, created in accordance with the individual needs of the customer, through the machine stage of production, ensuring a massive offer of similar products, to the individualized mass production, the ability to create products on a mass scale and meet the individual demands of customers. Simple cooperation and division of labor intrinsic to pre-industrial (artisanal) tenor of technology are losing their previously dominant position in the industrial society.

Here the "factory organization" is the most common in the economy. Later, assembly-line production, corresponding to the third and fourth technological stages, takes the leading position. They create the basis for the post-industrial tenors of technology using hard modules

(automatic factory) and flexible automated modules, based on the use of standardized components and expensive creative skills of quite few employees. The seventh technological stage is linked to human communication and behavior of machines.

The functioning of any economy is based on the allocated tenors of technology that serve as a base for creating of regional gross domestic product.

Figure 1: Situational model of tenors of technology monitoring in a national economy (department of marketing and foresight, MGUTU)



Regional gross domestic product is produced partly within primitive tenors of technology, partly on the basis of industrial tenors of technology, partly on the equipment of post-industrial tenors of technology. Schematically it can be represented as a pyramid. The use of this approach to the agricultural market performance assessment in a region will allow to monitor the development dynamics of new, more advanced tenors of technology. This would reduce the costs of both production and circulation. Shift to the right side of the "pyramid" visually displays that more advanced technological orders are used in the market. We will use this methodology for the analysis of the Russian domestic potato market performance.

The Russian domestic market of potatoes is highly diverse. As a rule, about 30 million tons are yearly collected in Russia, of which are exported about 100 thousand tons. It is known that the annual volume of potato consumption per person makes now about 33 kg. Therefore, a total of about 4.686 million tons of commodity potatoes is required yearly for Russia, with its more than 142 million citizens. Based on the needed consumption volume per person of about 100 kg, the need is about 14- 5 million tons annually. But the country produces a lot more potatoes more than 30 million tons per year! In fact, potatoes *are not* scarce in Russia. Potato production meets the needs of the population in accordance with the country food safety requirements. Local retail faces problems with potatoes every spring. Why is the issue of potatoes so acute in spring?

Potato production in Russia has increased considerably in recent years, not in personal production but in SMEs and big agricultural enterprises. In 2006-2014, average share of personal production counted for 63% of all potato production, share of agricultural enterprises was 26%, and share of the farmer production was 11%. Using this data, in-depth interviews were conducted with these three categories of producers, as well as with experts and consumers (26 respondents in total). As a result, we have found the difference in dominant tenors of technology (table 1).

Table 1: The tenors of technology (paradigms – TP) in the Russian domestic potato market

Tenors of technology	TP-1	TP-2	TP-3	TP-4
Potato output, big enterprises			+	+

Potato output, SMEs		+	+	
Potato output, personal production	+	+		

Thus, we receive the following "Pyramid" of technological ways in the contemporary Russian domestic potato market (picture 2).

According to the same respondents answering the question "What proportions you assume is necessary to have losses been reduced twice in the domestic potato market?", the "tenors of technology pyramid" in the domestic potato market shall be as follows (picture 3):

Figure 2: The "pyramid of technological stages" is in production on the domestic potato market

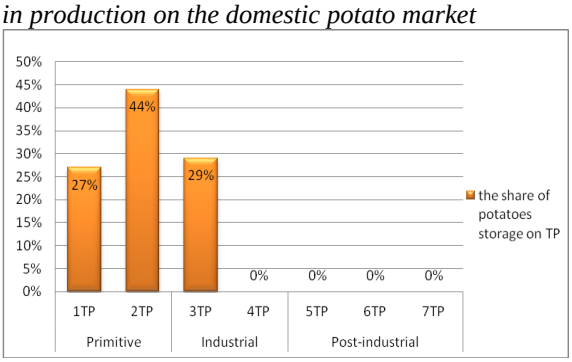
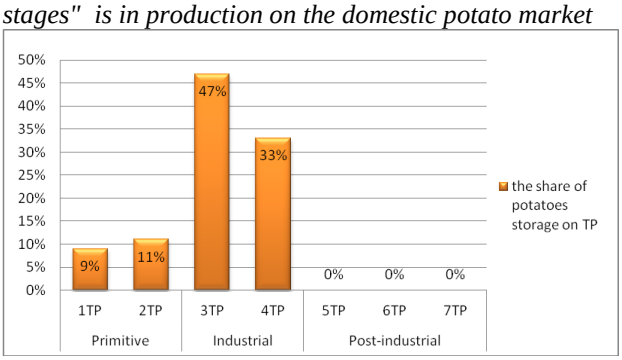


Figure 3: The prospective "pyramid of technological stages" is in production on the domestic potato market



So to reduce potato losses twice it is necessary to achieve the shift right side of the "tenors of technology pyramid" used in production on the domestic potato market, in almost the same proportions. Then, productivity is expected to change.

Let us apply similar approach to assessing the performance of potato storage in the Central Federal District (CFD Russia). In-depth interviews with producers, experts and consumers (a total of 26 respondents) were also conducted to unveil the basis of which different techniques are used in the domestic potato storage. In most simple storage systems (piles, etc.), up to 44% potato harvest in CFD is stored in accordance to the first tenor of technology. In stationary storage (bulk or container type) with natural cooling, natural, general exchange of mechanical ventilation or active ventilation, which corresponds to the second tenor of technology, there is about 42% of the crop. The container type artificial cooling (refrigeration) storage, with mechanical ventilation or active ventilation, which corresponds to the third tenor of technology, approximately 13% of the crop is kept. The fourth tenor of technology equipment include refrigerators with controlled atmosphere, created by artificial means, as well as storage with a combined cooling - natural and artificial old buildings. Warehousing corresponding to the fourth tenor of technology is virtually absent in CFD. The autonomous double-walled cubes-containers for potato storage, using inert gas, which corresponds to the fifth tenor of technology, and autonomous double-walled cubes-containers with sensors using inert gas, which corresponds to the sixth tenor of technology, no more than 1% of potato crop is stored as a pilot option (in experimental production). This equipment has no commercial application. The seventh tenor technologies, i.e. potato storage systems with voice setting elements, are also represented only as an experimental option.

Based on this data, it is possible to visualize the state of the domestic potatoes storage. The economy of any country operates on the basis of selected technological paradigms. Consequently, the generated gross domestic product is the result of technological paradigms functioning. Some part of the gross domestic product is produced on the basis of handicraft paradigms, some part is based on the industrial TP, some part is created according to the

postindustrial paradigms. Schematically, it can be represented as a pyramid. The higher technological paradigm results in lower consumption of resources and lower costs.

Regarding potato storage, it is necessary to focus on the development of storage technologies corresponding to the fifth-sixth-seventh tenors of technology (postindustrial paradigms). That's why Rosagroleasing responsible for agricultural technologies development in Russia should focus its efforts on the acquisition of experimental "cubes", autonomous air-tight containers for the potatoes storage corresponding to fifth-sixth-seventh tenors of technology, and to encourage their use in practice.

Figure 4: Current state of technology in potato storage

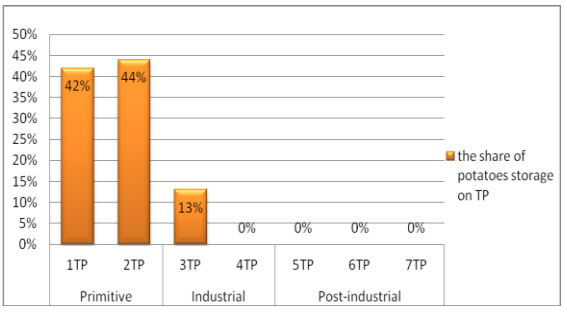
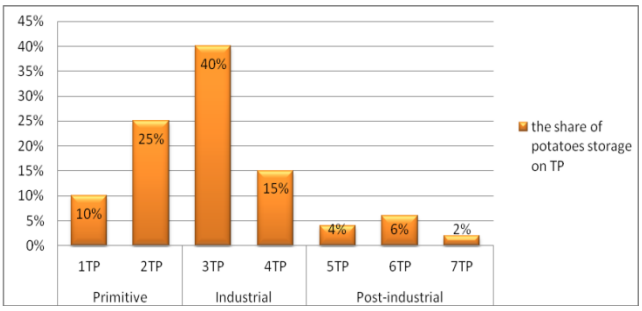


Figure 5: Proposed changes in the development of a potato storage



This transition to post-industrial technology on the Russian potato market will give the chance to decrease the number of expensive storage facilities, to reduce product loss during storage, to increase consumer value of products, and to lower distribution costs. Visually, it will be shown in shift of technology shares "pyramid" in favor of progressive tenors of technology.

3. Conclusion

This approach to market performance assessment was tested on the Russian domestic potato market and it can be an important tool in management of the agricultural market.

Proposed approach allows illustrating visually the extent at which the use of innovative technological solutions and the transition to the highest post-industrial technological stages increases the market performance. In this context, the task of the Ministry of Economic Development of the Russian Federation should not be reduced to annual fixation of poor results of domestic producers and seeking for accusatory factors, explaining and justifying the poor performance of the Ministry itself, not even to how many percent of the agricultural market allow the country to ensure its food safety, but, more importantly, to the development guidelines for the Ministry of agriculture which will help to increase the consistency of the market, improving its performance, as a consequence of the development of post-industrial tenors of technology in both production and circulation.

This approach allows somewhat differently develop state support of local producers. Unless high market performance is seen, state support is unlikely to be provided, since it will lead to an increase in production and distribution costs, and to losses, and the market will not achieve consistency in the foreseeable future. In this case, support from the state becomes plundering, and change of technological stages becomes too slow. State support should be provided to producers aimed at the use of technology related to the post-industrial tenors of technology, since this helps to increase market performance and contributes to its viability growth. But this does not mean that it is necessary to distribute the financial resources before

the harvest. Cost structure (salaries, seed, fertilizers, petroleum, equipment maintenance) is quite stable over the years in percentage terms. Still, government support tools can be different. For example, in order to strengthen the production-consumption relationship, «Rosagroleasing» should focus its policy on procurement of equipment for local producers, as well as technological lines for storage and processing. For those market actors that seek to use technology relating to post-industrial technological stages, equipment leasing is important, with granting compensation for the use of post-industrial technologies. Promising tool can be, for example, a special fund sourcing from "poor performance producers", insurance companies and funds allocated by regional authorities to increase market performance.

Fourthly, there is little to produce domestic substitutes with low costs of both production and circulation. It is important to implement these products. But here the question arises, how to reduce the risk of loss in circulation?

One of the central elements of the production-consumption relationship are warehouse distribution centers, providing storage products, product processing enterprises, transportation companies, waste disposal companies. In Soviet times, that was usually isolated independent companies. They functioned under agreements, and mutual claims led to significant growth in distribution costs due to the conflicts between the companies. In modern Russia the situation is gradually changing. The current commodity distribution infrastructure is one of the major barriers to the development of Russian agriculture. With the development of retail chains in the domestic market, also whole sale distribution centers as complexes of storage facilities are growing in number. Such distribution centers are a common form of Europe, at least 50 years, their establishment and subsequent development actually take decades.

It is necessary to concentrate on stimulation of wholesale distribution centers network development in Russia that will help to considerably reduce distribution costs and will provide domestic producers with access to trade organizations. Then Russian consumers will give preference to local products not only because they are patriotic, but because they count them really better and cheaper due to low distribution costs in domestic distributive networks, and technologies which correspond to higher, post-industrial technological stages.

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GLOBALIZATION AND THE TELECOMMUNICATION MARKET OF RUSSIA: PRICING STRATEGIES OF THE DOMINANT OPERATORS

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Abstract. The means of communication has long served to connect millions of people, living in the territories divided by the huge distances. One can easily consider them as the first manifestation of the globalization processes. The methods of communication constantly improved and diversified – from messengers and postal workers, through telegraph, radio and landline phones to the mobile and satellite communication, VoIP (Skupe, Viber & other), Instagram, Telegram (messenger) etc. The telecommunication industry is rapidly developing throughout the world (Jerbashian, 2015), and Russia is no exception. However, the global economic crisis of 2008-2009 considerably influenced this industry too. The credit risks that the telecommunication companies of Russia had faced in 2006-2007, before the global crisis, caused significant changes within the structure of the Russian mobile service market. (Dengov & Tulyakova, 2015). Where initially there had been several dozen mobile operators, defining the nature of the market as a monopolistic competition, within but a few years all the key positions there were taken by four major companies (domestic MTS, Megafon, Beeline and the Swedish company Tele-2), keeping out any new operators. In the two new articles on this topic, the authors address the analysis of the pricing strategies of the major operators within the Russian telecommunication market. In the first article, they calculated the concentration indices of the industry. Their values lead the authors to the conclusion about the "diluted" oligopoly that has fully emerged by now in the mobile communication market. As the result of their research, the authors came to certain conclusions about the character of the pricing policies of the main mobile operators in the Russian Federation and the strategies that they implement in view of price differentiation within the different regions.

Keywords: telecommunication market, market concentration indexes, type of market, price policy, third-degree price differentiation

JEL Classification: L11, L13, L96, D4

1. Introduction

The analysis of the concentration indices, carried out by the authors within the first article on this stage of their research, proved that by now the telecommunication market in this country has developed into a "diluted" oligopoly or, more correctly, "quadrapoly" within the oligopolistic environment. The calculation of the average service prices for each region of Russia and the building of the multiple regression models provided the general understanding of the pricing policies of the operators. Then the authors found out the main factors, influencing

the average price of communication services within a region. For each chosen model, they carried out an analysis with the calculation of the elasticity coefficients, which showed the changing of the average prices in relation to the changes in the influencing factors.

2. The object of research, types of strategies and the method of analysis

The object of the research in this article is as well as in the previous one - the mobile communication market of the Russian Federation (RF), while the subject of the research are the strategies implemented by the mobile operators, the regional peculiarities of the pricing policy of each company, depending on the variety of factors.

The pricing strategy means the entity of the long-term provisions and principles, based on which the sellers set the prices for their goods. One can name a few major strategies implemented in the mobile communication market: "creaming" or "skimming"; "easy penetration"; price discrimination; assortment pricing; psychological pricing; competition pricing; "price leadership".

The "skimming" strategy assumes that the seller over-prices those goods or services for which there are no counterparts produced by other competitors, and thus has the opportunity to rip surplus profit from the buyers, who highly value the qualities of these particular goods or services. In the case of the "easy penetration" strategy, the sellers intentionally set the prices for their goods or services lower in order to attract the customers from their competitors. The price discrimination strategy means that the sellers set different prices for their goods or services, depending on the segmentation of the market, for instance, according to its geographical position. This strategy also includes the use of special discounts for different categories of customers. If the sellers implement the strategy of the assortment pricing, they sets the price not for a single type of goods, but for a set of goods. Such a set usually includes the main product and a few additional products that make the main one more attractive to the consumer. The psychological pricing strategy takes its root from the methods of psychological influencing the clients, that is, the sellers create the illusion that their goods would be both profitable and practical for the customers, thus trying to attract their interest. In the case of the competition pricing, in setting the prices for their goods or services the sellers take a cue from their competitors. The last strategy generally means that there is one leading company in the market, which sets its own prices for the goods and services, while the other companies in conducting their pricing process take cue from the prices set by the "leader".

Often the sellers implement several pricing strategies at once, i.e. combine them, which both increases the profits and helps them to adapt more easily to the changes within the market.

As they had done during the general analysis of the pricing policy within the regions (irrespective to the peculiarities of individual strategies of each operator), in the second article as well, the authors selected the living standard of the population, the severity of competition and the demand for the mobile services as the main factors, influencing the price of the mobile services of a particular company in each region.

For the solution of the suggested problems they also used the same regression models for the dependence of the average price of the services of mobile operators in a particular region on the selected factors, as in the first case:

1. Linear regression $$y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + \varepsilon; \quad (1)$$

2. Power-law $$y = b_0 x_1^{b_1} x_2^{b_2} x_3^{b_3} \varepsilon; \quad (2)$$

3. Exponential $$y = e^{b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \varepsilon}; \quad (3)$$

4. Hyperbolic $$y = \frac{1}{b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 + \varepsilon}; \quad (4)$$

3. The analysis of the mobile communication prices of different operators within the different regions of the Russian Federation

According to the data on the service plans and prices of the mobile operators and using the algorithm based on the methods of the "ComNews Research" company, we calculated according to the OECD methods the price of a unified set of services ("the average consumer basket") for each of the regions of our country. The analysis of this data for each operator in particular showed that in the different regions of the Russian Federation all the operators set different prices and provide a different set of services. It is related, for the most part, to the size of population within any particular region and their household income. It turned out that the only prices that almost never change are the prices for roaming, SMS and the price for one megabyte of data transfer.

As expected, the "cheapest" operator was the Swedish company *Tele2* (2015), and the most expensive – *MTS* (2015). The average price of the *Tele2* "basket" was almost a quarter lower and of the *MTS* one – almost 10% higher than the average price of the same set of services for the RF as a whole. The prices of the *Megafon* (2015) (higher by 6%) and *Beeline* (2015) (lower by approximately 8%) came the closest to the average mobile service price for Russia as a whole.

The research proved that all the major operators in the Russian mobile communication market implement a combination of several strategies; however, it is possible to point out the dominating strategy in their behavior. Thus, *Tele2* favors the strategy of "easy penetration". *Beeline* follows the medium prices strategy, striving to ensure the homogenized prices for their services in the majority of regions. The pricing policy of *Megafon,* on the other hand, shows a strong dispersion of prices depending on the region, which is easy to explain by their strategy of the development of the subsidiary regional companies, enjoying a certain independence in regards to the pricing policies. *MTS,* which controls the biggest share of the mobile service market of the RF, implements a typical "price leadership" policy (the Forchheimer model of oligopoly). At the same time, the policy of price discrimination according to the different regions of the RF ("the segments of the geographical markets") is common for all the operators.

As we had already established in the first article on the results of our research, in various regions of the country, the mobile operators provide the same service plans at different prices, which leads to the differentiation of the price of the consumer basket from one region to another. The most adequate regression model that we used (with the exponential dependence) proved the segmentation of the mobile services market of the RF according to the geographical position of the region, the living standards of its population and the nature of their individual preferences and existing options.

4. The dependence of the average service price on the selected factors for each mobile operator in particular

Similar to the analysis of the situation within the regions as a whole, the regression models for the dependence of the average service price of each mobile operator in a particular region on the

above-explained factors were built with the help of "gretl" program. In each case, for each mobile operator, the authors built all the four types of the regression models (by using the least square method). After the analysis of the resulting models, the authors chose for each operator the model that provides the more exact description of the dependence of the service price on the selected factors, i.e. has the determination coefficient, which is the closest to one.

In building the multiple regression models for *MTS*, it was determined that the most exactly descriptive model is the one with the exponential dependence (Tab. 1).

Table 1: Model of the dependence of the average cost on services of the mobile operator "MTS" from the chosen factors (exponential dependence)

Analytical derivatives are used
Inaccuracy = 1,81899e-012

Convergence is achieved after 4 iterations

Model 3: Nonlinear OLS, observations were used 1-83
Y = exp (delta + x1 * alpha + x2 * beta + x3 * gamma)

	Evaluation	Standard error	t-statistic	p-value	
delta	5,81508	0,109380	53,16	1,31e-063	***
alpha	7,55918e-06	1,82147e-06	4,150	8,32e-05	***
beta	2,98322e-05	7,84105e-06	3,805	0,0003	***
gamma	-0,0586246	0,0256551	- 2,285	0,0250	***

Average of Dependent Variables	372,1347	Standard deviation of dependent variables	79,93567
Sum of squared residuals (SSR)	270266,3	Standard error	58,4901
R squared (R^2)	0,504182	Adjusted R^2	0,494594
Logical likelihood	- 453,4373	Akaike criterion (AIC)	914,8746
Schwarz criterion	924,5499	Hannan–Quinn information criterion (HQC)	918,7616

According to this model, the regression equation with the coefficients correct to the two decimal places looks as follows:

$$y = e^{5,82+7,56*10^{-6}x_1+2,98*10^{-5}x_2-0,06x_3+\varepsilon} \quad (5)$$

where y – the average cost for the services of mobile operators, x_1 – cash incomes on average per capita, x_2 – the volume of communication services rendered to population, per capita, x_3 – number of major operators in the region. (The same variables were used in all the other regression equations).

All the coefficients in this multiple regression model are significant with the confidence interval 5%. The model is acceptable since its determination coefficient equals 0,5. The resulting regression coefficients can be interpreted as follows: if the index of the volume of the communication service provided per capita of the population increases by 1%, the price of the mobile communication services will increase by 18%; if the number of major operators in the region increases by one, the price will lower by 6%; and if the average income per capita increases by 1%, the price will grow by 15%.

Taken as a whole, this model is very similar to that of the dependence related to the average mobile service price for all the operators together. The *MTS* price is also dependent on the living standard of the population, the extent of the competition and the demand for the mobile services, i.e. the price depends on the individual characteristics of a particular region.

In building the multiple regression models for *Megafon*, it was determined that the most exactly descriptive model is the one with the power-law dependence (Tab. 2).

Table 2: Model of the dependence of the average cost on services of the mobile operator "Megafon" from the chosen factors (power-law dependence)

Analytical derivatives are used
Inaccuracy = 1,81899e-012

Convergence is achieved after 51 iterations

Model 2: Nonlinear OLS, observations were used 1-83
Y = exp (delta + x1 ^alpha + x2 ^beta + x3 ^ gamma)

	Evaluation	Standard error	t-statistic	p-value	
delta	1,54782	1,37590	1,125	0,2640	
alpha	0,420224	0,106958	3,929	0,0002	***
beta	0,249586	0,0817797	3,052	0,0031	***
gamma	- 0,639652	0,181262	- 3,529	0,0007	***

Average of Dependent Variables	364,3736	Standard deviation of dependent variables	146,9183
Sum of squared residuals (SSR)	976764,5	Standard error	111,1940
R squared (R^2)	0,448146	Adjusted R^2	0,427190
Logical likelihood	- 506,7580	Akaike criterion (AIC)	1021,516
Schwarz criterion	1031,191	Hannan–Quinn information criterion (HQC)	1025,403

According to this model, the regression equation with the coefficients correct to the two decimal places looks as follows:

$$y = x_1^{0,42} x_2^{0,25} x_3^{-0,64} \varepsilon \,. \tag{6}$$

All the coefficients in this multiple regression model are significant with the confidence interval 1%. The model is less exact, because its determination coefficient equals 0,45, but is very close to it. Interpreting the received regression coefficients can be as follows: when the indicator of the volume of communication services rendered to the population increases by 1%, the cost of mobile communication services increases by 25%; With an increase in the number of large operators in the region per unit, the cost is reduced by 64%; With an increase in cash income per capita by 1%, the cost increases by 42%. The constructed regression model confirms the conclusion made earlier with respect to this mobile communication operator about the dependence of the average cost of its services on the characteristics of the region.

In building the multiple regression models for *Beeline*, it was determined that the most exactly descriptive model is the one with the hyperbolic dependence (Tab. 3).

Table 3: Model of the dependence of the average cost on services of the mobile operator "Beeline" from the chosen factors (hyperbolic dependence)

Analytical derivatives are used
Inaccuracy = 1,81899e-012

Convergence is achieved after 3 iterations

Model 3: Nonlinear OLS, observations were used 1-83
Y = 1 / (delta + x1 * alpha + x2 * beta + x3 * gamma)

	Evaluation	Standard error	t-statistic	p-value	
delta	0,00314701	0,000225632	13,95	5,22e-023	***
alpha	- 1,31696e-09	4,44923e-09	- 0,2960	0,7680	
beta	- 1,19854e-07	1,77586e-08	- 6,749	2,25e-09	***
gamma	- 0,000172081	5,21258e-05	- 3,301	0,0014	***

Average of Dependent Variables	316,2783	Standard deviation of dependent variables	46,59428
Sum of squared residuals (SSR)	89865,90	Standard error	33,72748
R squared (R^2)	0,495204	Adjusted R^2	0,476034
Logical likelihood	- 407,7421	Akaike criterion (AIC)	823,4842
Schwarz criterion	833,1595	Hannan–Quinn information criterion (HQC)	827,3712

According to this model, the regression equation with the coefficients correct to the two decimal places looks as follows:

$$y = \frac{1}{3{,}15*10^{-3} - 1{,}20*10^{-7}x_2 - 1{,}7*10^{-4}x_3 + \varepsilon}. \quad (7)$$

All the coefficients in this multiple regression model are significant with the confidence interval 1%, except for the coefficient before the regressor that describes the income per capita, which is insignificant. The model is acceptable since its determination coefficient equals 0,5. The resulting regression coefficients can be interpreted as follows: if the index of the volume of the communication service provided per capita of the population increases by 1%, the price of the mobile communication services will decrease by 19%; if the number of major operators in the region increases by one, the price will lower by 5%.

The acquired model is a little different from the previous models; it shows that the price of the mobile services depends only on the extent of the competition and the demand for the mobile services. It proves that everywhere except for a few regions this operator uses the medium prices strategy, since it is clear that *Beeline* sets its prices without relation to the living standard within the region.

In building the multiple regression models for *Tele2*, it was determined that the most exactly descriptive model is the one with the exponential dependence (Tab. 4).

Table 4: Model of the dependence of the average cost on services of the mobile operator "Tele2" from the chosen factors (exponential dependence)

Analytical derivatives are used
Inaccuracy = 1,81899e-012

Convergence is achieved after 3 iterations

Model 3: Nonlinear OLS, observations were used 1-42
Y = exp (delta + x1 * alpha + x2 * beta + x3 * gamma)

	Evaluation	Standard error	t-statistic	p-value
delta	4,86388	0,497371	9,779	6,33e-012 ***
alpha	2,40538e-05	2,61037e-06	9,215	3,15e-011 ***
beta	- 1,58225e-05	1,71864e-05	- 0,9206	0,3630
gamma	0,0459680	0,131186	0,3504	0,7280

Average of Dependent Variables	268,8769	Standard deviation of dependent variables	112,1761
Sum of squared residuals (SSR)	211266,1	Standard error	74,56295
R squared (R^2)	0,590508	Adjusted R^2	0,558180
Logical likelihood	- 238,5827	Akaike criterion (AIC)	485,1654
Schwarz criterion	492,1161	Hannan–Quinn information criterion (HQC)	487,7131

According to this model, the regression equation with the coefficients correct to the two decimal places looks as follows:

$$y = e^{4{,}86+2{,}41*10^{-5}x_1+\varepsilon}. \quad (8)$$

In this multiple regression model, the coefficient before the regressor that describes the average income per capita is significant with the confidence interval 1%. Based on that, we can say that if the average income per capita increases by 1%, the price grows by 59%. The coefficients before the regressors describing the volume of communication services and the extent of the competition in the market turned out to be insignificant. However, the model is quite acceptable, since its determination coefficient equals 0,59.

This model tells us that the average price of the mobile services depends only on the average income per capita in this region, which proves that *Tele2* follows the strategy of "easy penetration", since this operator does not pay heed to other competitors within the region.

5. Conclusion

During the analysis of the pricing policy in the Russian mobile communication market, we found out the trends, also notable for the global telecommunication market as a whole. The calculation of the average price of the mobile services in each region of the RF provided the general understanding of the pricing policies of the operators dominating the market. Then we found out the main factors, influencing the average price of communication services in a region: the household income of the population, the extent of the competition and the demand for the communication services. While in the first article, the regression models for the dependence of the average price of the mobile communication were built for the regions as a whole, without concentrating on the peculiarities of the pricing policies of particular operators; in the second article, we built such models for each operator in particular.

The analysis of the acquired data and of the created models showed us the following:

1. All operators implement a combination of the pricing policies with more emphasis on a single particular policy. At the same time, the strategy of price discrimination from one region of the Russian Federation to another is common for all the operators.
2. *Tele2* follows the strategy of "easy penetration" and its prices are significantly lower than the average price of the mobile services in each of the regions.
3. In the majority of regions, *Beeline* follows the medium prices strategy.
4. *Megafon* shows a considerable dispersion of mobile service prices from one region to another. It proves that the price is determined based on the individual characteristics of a particular region.
5. *MTS* acting as a "price leader" of the industry sets the prices considerably higher than the average price of the mobile service in the region.
6. There is indeed a dependence of the average service price in the region on the household income of the population, the extent of competition and the demand for the mobile services. It confirms the existence of actual segmentation within the market, as well as the existence of the premises for the price discrimination of the third type (according to the elasticity of the demand).

Undoubtedly, the price of the mobile services for the population is lower in those regions, where the competition between the operators is more severe. However, the market concentration within the Russian market is quite strong, which means that the Federal Anti-Monopoly Service has to make more efforts to remove the entry barriers. Comparing the situation in the telecommunication service markets of the Russian Federation and the EC, one has to admit that the latter is more competitive (Hausman & Taylor, 2016). Besides all the other reasons, it is due to the active anti-monopoly policy carried out by DG CECC and the existing competition with the traditional (landline) communications and voice over IP telephony (Lange & Saric, 2016). Besides all the other reasons, it is due to the active anti-monopoly policy carried out by DG CECC and the existing competition with the traditional (landline) communications - China Mobile (Wang, 2016), forces the European operators to actively promote the policy of free roaming, to lower the per-minute plans in order to win a bigger market share (Dorgham et al., 2015, Tsilikas, 2017) and to implement the groundbreaking technologies to lower the costs and earn the maximal profit (Ghezzi et al., 2015, Min et al., 2016, Jeanjean & Houngbonon, 2017).

The cooperation between the EC and the Russian Federation in the field of the implementation of the innovative technologies, including those related to the telecommunication industry, could help in lowering the costs for the providers of services and consequently – the prices for the consumers (Korostyshevskaya & Urazgaliev, 2016, Chebbi, et al., 2017).

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FUNDED PENSION SYSTEM IN THE GLOBAL ECONOMY: LESSONS FOR RUSSIA

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Abstract. The study summarizes the experience of the funded pension systems functioning in various countries around the world. The key elements of the institutional structure of capitalization mechanism of pension contributions were identified: mandatory or voluntary participation; the source of contributions to the pension system; government regulation of pension assets investment; the types of organizations managing pension savings; the nature of the relationship between a payer of contributions and a provider of pension services; taxation of retirement savings. The author assesses the quality of functioning of the national funded pension systems by such criteria as the real rate of return, risk level of investment portfolios, as well as administrative costs for pension accounts management. The work concludes that globalization has led to a greater influence of such factors as migration, international capital flows and the investment climate on the structure and performance of national pension systems. The results of the analysis of the international experience allowed the author to determine the causes of the negative results of accumulative part of pension system operation in Russia from 2002 to 2016. The paper argues that currently proposed reforms of the Russian pension system do not consider the global trends of pension systems and therefore will not solve the existing problems.

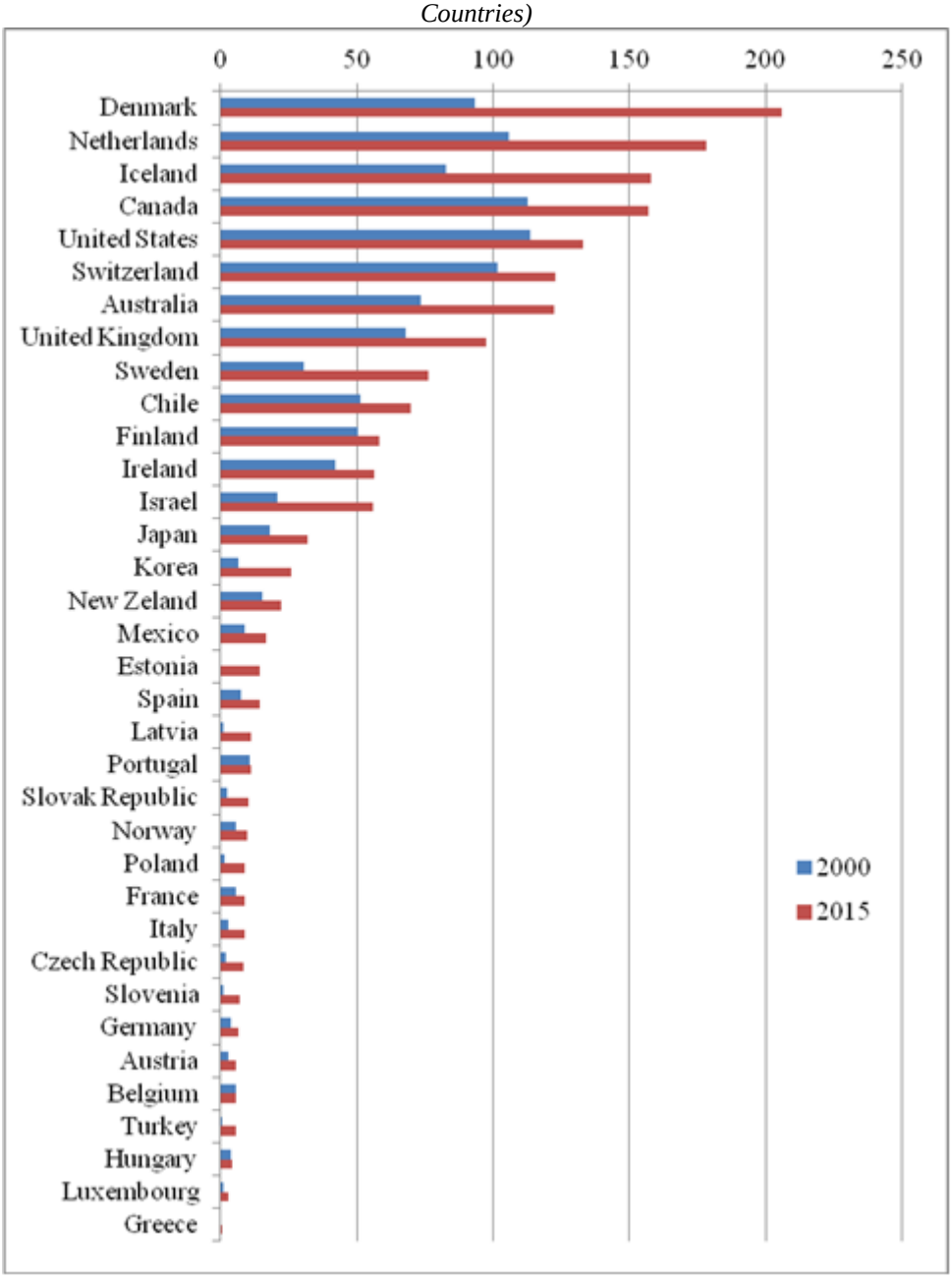
Keywords: fund, investments, assets, rate of return

JEL Classification: F65, G11, G23, G28

1. Introduction

Faced with a growing imbalance in the PAYG pension system, many countries began to create a funded pension system. By the end of the last century, this system was operating in all developed countries and in many developing countries (Burtless, 2012). This was facilitated by a favorable effect of pension savings investment on labor and financial markets (Novakovic, 2015). From 2000 to 2015, the median value of funded pension programmes assets in OECD countries has doubled from 7.5% to 14.5% of GDP (Fig. 1). The results of a study on systematization of the world experience of funded pension systems, the impact of globalization on the mechanisms of collection and investment of pension contributions are presented in this paper. These results also allowed us to evaluate the funded part of the Russian pension system and proposals for its reform.

Figure 1: The growing importance of funded pension arrangements (Total assets as a % of GDP in OECD Countries)



Source: OECD (2016)

2. Key elements of the institutional structure of the funded pension system

Analysis of the scientific research and practice activities of funded pension systems reveal the following basic elements of the mechanism of pension contributions capitalization: type of citizen participation; source of the pension payments; method of the investment regulation; the types of organizations managing pension funds; the nature of the relationship between a payer of contributions and a provider of pension services; taxation of retirement savings. Of course, the proposed set of institutions is not exhaustive. Each national pension system has different components. However, these elements and their various combinations create a certain type of funded system, which defines the results of its operations further.

2.1 Type of citizen participation

In contrast to the PAYG systems, participation in the funded pension system can be both mandatory and voluntary. We consider the type of the participation voluntary if pension policy design

- has a default option (use the automatic enrollment e.g., New Zealand);
- has no legal obligation to make pension contributions, but there is a private pension insurance tradition (e.g. the USA, the UK).

There is voluntary pension insurance in all 34 OECD member countries and there is a mandatory funded system in 16 of them (OECD, 2015, B). But the proportion of participants in voluntary pension schemes is greater than 25% of the working age population only in 10 countries (OECD, 2015, B). Only one third of the countries created a funded pension system for the last 20 years had not anticipated the mandatory participation of citizens (Tumanyants & Elkina, 2016). This statistics reflects the fact that voluntary programs are successful (from the point of view of population coverage) only in those countries where the society has developed a tradition concerning providing independence from the government for old age. Voluntary pension savings require trust in the relations between population, business and government that is observed far not in all countries (Bovenberg & Mehlkopf, 2014).

2.2 The source of pension payments

Theoretically there are three options for the pension contributions - payments by the employee, payments by the employer, payments in a certain proportion between them. However, we failed to detect a single country, which would have used the second option with the exception of Russia. Contributions are fully funded from the employee's income most often with the voluntary pension savings (Holzmann, 2012). In fact, the funded pension system, especially mandatory, represents the mechanism of "imputed savings." However, among researchers there is no consensus regarding the effect of the funded pension system on the rate of the savings in the economy. In some countries, households joining the pension program reduced other types of savings (Tumanyants & Elkina, 2016).

2.3 Method of the investments regulation

It is possible to allocate three groups of funded pension systems on the base of investment requirements type (OECD, 2015, A). The first group includes 12 countries applying regime "multifunds" when citizens are encouraged to select one of the portfolios established by the ratio of risk assets (for example, proportion between equity and debt) (Cayon & Thorp, 2014). 27 countries with quantitative restrictions on the structure of the investment portfolio, for example, the maximum or minimum share of a particular class of assets, form the second group (Ning et al., 2014). Finally, in 23 countries such restrictions do not exist. The government generally uses a prudential approach to the regulation of the investment process. In accordance with it, the quality of acquired assets is controlled and reserves, the size of which is determined by the degree of investment risk, are established.

2.4 The types of organizations managing pension savings

30 countries in the world have public pension investment funds (Papaioannou & Rentsendorj, 2014). In some cases they are exclusive participants in the investment of pension contributions, but most often they are on the market with private organizations at the same time. The range of private organizations eligible for investments of pension funds varies in

different countries. It is most extensive in the US, where the capitalization of pension contributions may occur through banks, insurance companies, investment companies, pension funds and even enterprises-employers. However, in most countries, the main participants in this market are the private pension funds. But depending on national legislation, these funds may be established either as an independent company or to operate as a trust fund (Burtless, 2010). Furthermore, differences may lie in the possibility of self-investment by the fund or mandatory involvement for this management company.

2.5 The nature of the relationships between a payer of contributions and a provider of pension services

This option covers a wide range of issues of interaction between citizens and organizations engaged in the accumulation, investment and payment of pension funds and therefore assumes the greatest variety of possible values. We consider the type of obligations to pay contributions to be one of such issues. It depends on the kind of retirement accounts: defined contribution (DC) or defined benefit (DB). In the first case, investment risks are borne by the citizen in the second case the organization providing services of pension provision. In recent decades the trend is changing proportions between DC and DB pension plans in favor of the first (Farrell & Shoag, 2016). This is because the error of investing in DB schemes leads to bankruptcy of organizations, either in an effort to completely protect its operations, organizations use the most conservative investment policies, resulting in very low yield (Woods, 2017). Thus, in the end, in both cases the risks are borne by the client, but DB plans are less transparent to the consumer (Mohan & Zhang, 2014). It is also relevant to consider the question of the possibility and order of change of organization providing pension services. In the case of a single state fund such option is missing. In other cases it exists but is limited either by the number of transitions, or the loss of income, or the need of payment (Bravo & Luis, 2015). In pension systems with regime multifunds there are age restrictions (life-cycle fund). For example, for individuals who are approaching retirement age unavailable portfolios with a high proportion of risky assets. The personification of the pension obligations is also an important aspect of mutual relations of participants of the pension system (Chavez-Bedoya, 2017). It occurs in case of accounting for funds in individual accounts of citizens. Otherwise, pension liabilities constitute the rights of citizens to receive funding from the investment fund under certain conditions (for example, reaching a certain age) to the amount determined by the established rules.

2.6 Taxation of retirement savings

Tax laws may provide benefits in any of the three stages of the mechanism of funded pension provision: the contribution, income from investment and payment of pensions. Recent studies have confirmed the possibility of obtaining significant tax savings for members of pension schemes (table 1). On average, 23% of tax benefit (OECD, 2016). However, there is still some disagreement among the scholars on the importance of tax incentives for the behavior of households (Holzmann, 2012, Bravo & Luis, 2015).

Table 1: Overall tax advantage in OECD countries

Country	Type of plan/contribution	Tax regime	Overall tax advantage as a percentage of the present value of contributions
Estonia	Mandatory contributions	EET	23
	Voluntary contributions	TEE	37
Finland	Voluntary occupational plans	EET	5

	Voluntary personal plans set up by employers	EET	11
	Voluntary personal plans set up by individuals	TET	27
France	"Article 83" plans	TET	25
	"PERP" plans	TET	25
Germany	Pension funds	EET	20
	Direct commitments	EET	15
	Private pension insurance	TET	11
Greece	All	EET	14
Hungary	Voluntary private pension funds	TEE	46
	Individual retirement accounts	TEE	39
Iceland	Occupational DB plans	EET	37
	Occupational DC plans	EET	44
Ireland	All	EET	35
Israel	All	TET	51
Italy	All	ETT	32
Japan	Corporate DB plans	EET	24
	Corporate DB plans	EET	26
Korea	Occupational DB plans	EET	17
	Occupational DC plans	TET	14
Latvia	Mandatory scheme	EET	9
	Voluntary scheme	ETE	20
Luxembourg	Occupational DB plans	TEE	28
	Occupational DC plans	TEE	23
Mexico	Mandatory contributions	TET	51
	Special accounts	EET	10
Netherlands	Occupational DB and DC plans	EET	32
	Personal plans	EET	29
New Zealand	Occupational plans	TTE	3
	"KiwiSaver" plans	TTE	11
Norway	Occupational plans	EET	20
	Personal plans	TET	-2
Poland	"OFE" plans	EET	18
	"IKZE" plans	EET	26
Portugal	Occupational plans	EET	15
	Personal plans	TET	21
Slovak Republic	"Pillar 2" plans	EEE	36
	"Pillar 2" plans	TTE	9
Slovenia	All	EET	1
Spain	All	EET	9
Sweden	Quasi-mandatory occupational	ETT	13
	Individual pension savings	ETT	12
Switzerland	Mandatory occupational plans	EET	31
	Personal plans	EET	30
Turkey	Personal plans	TTE	30
	Employer-sponsored group contracts	TTE	6
United Kingdom	Occupational DB plans	EET	30
	Occupational DC plans	EET	34
United States	401 (k) plans	EET	24
	Individual retirement accounts	EET	26

Note: E stands for exempt and T for taxed. Letter in first position indicates for contributions, in second – for returns and in third – for withdrawals.
Source: OECD (2016)

3. Criteria of success of funded pension system and the impact of globalization

The diversity of pension systems in the world requires the development of uniform criteria for comparing their quality. The role of such criteria can be the return on investment in real terms (Gorlin, 2015), the level of risk for the client and the costs of operation of the system (Chavez-Bedoya, 2017, Alda & Ferruz, 2012). The analysis showed that for the period 2006-2015 profitability of public pension funds by 1 percentage point exceeded the corresponding figure for non-state funds, with the level of risk of the two fund groups were comparable. Total costs under the state management of pension funds on average are 30% lower than private providers.

It should be noted that globalization represents a significant challenge to the functioning of pension systems. The ability to cope with it can also be seen as an indicator of competitiveness of national institutions of the pension system. From a large set of threads that integration of the world economy associated with the pension system, the most significant ones are migration, international capital flows and the investment climate. Funded pension system with individual accounts in contrast to PAYG systems and funded systems no bills are well adapted to the increasing mobility of the population, as the size of the funds in the account exactly corresponds with the value of the pension obligations to its owner. The increase in the volume of international capital flows creates both positive and negative implications for funded pension systems (Cayon & Thorp, 2014). On the one hand, it allows to increase the diversification of the investment portfolio, which leads to risk reduction (Kovacs et al., 2011). On the other, the massive outflow of capital from the country depreciates the value of financial assets, reduces the value of retirement portfolios. This fact brings us to the third factor. In the era of globalization, the requirements of the investment climate in the country are rising. Favorable conditions for doing business become not only an economic but also a social issue, because they reduce the risk of capital flight and increase the value of the national stock of assets and, consequently, the evaluation of pension investment portfolios.

4. Summary and conclusions for Russia

Of course in the sphere of pension security there may not be a common template for all countries, but nevertheless the study can be used to assess the current state of the Russian pension system and prospects for reform, drawing on international experience. The transition from mandatory to voluntary participation in the funded pension system, which is currently under discussion in the government of the Russian Federation, does not correspond to international trends and in the absence of the necessary conditions in the country will lead to a complete return to the PAYG system. The implementation of the Central Bank of the Russian Federation and the Ministry of Finance of the Russian Federation on the collection of at least part of pension contributions from the employee's income, by contrast, would bring Russia to the world's most common standards. Since the beginning of the operation of the mandatory funded system in Russia, the real investment yield has been very low (table 2).

Table 2: Indicators of funded pension system in Russia 2002-2016, %

	Return (CAGR)	Risk (St. dev.)	Share in total assets at 31.12.16
Inflation	7,6		
Private asset-management companies	9,4	15,4	1,0
State asset-management company	8,0	3,7	47,7

Pension funds	7,5	10,8	51,3

Source: authoring

To improve the efficiency of the pension system in Russia it is necessary to concentrate retirement savings in a single state pension investment fund, the regulation of investments which would have occurred on the basis of regime multifunds. Each participant in the fund is offered individual retirement DC account. With the aim of increasing coverage, it is advisable to exempt pension funds from tax at all stages, i.e. to introduce in Russia the EEE mode.

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DIRECTIONS OF THE COMPETITIVENESS DEVELOPMENT OF RUSSIAN INTEGRATED STRUCTURES IN METALLURGICAL SPHERE UNDER CONDITIONS OF GLOBALIZATION

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Abstract. Current economic trends are simultaneously characterized by both integrated processes which cause organizational activity of companies, the rise of a corporate sector, and the increase of competitive strain on the world market, the formation of new ways of competitive struggle. In particular, in Russian metallurgical industry, which still has the leading role in the industrial complex of the country, there is an active process of forming integrated structures aimed at improving competitiveness and enhancement of the growth power of the companies in metallurgical sphere; strengthening of the market positions; development of the partnering relationships with the leading world corporations. All above-mentioned make the problem of the research actual. In the article, the stages, specific factors, peculiarities of the integrated processes development in metallurgical sphere, which allowed to formulate main tendencies and aims of corporate integration under conditions of globalization, are outlined. The results of the research in the directions of the competitiveness development of Russian integrated structures in metallurgical sphere in the domestic and world markets by reference to specific features of the current stage of globalization are presented (as exemplified – Group Public Company "Magnitogorsk Iron and Steel Company"). The results of the research develop insufficiently studied by Russian science theoretical and methodological questions of the integrated structures functioning development from the perspective of the competitiveness assessment, revealing of the institutional reserve for corporate organization effectivization, using new principles and tools in the process of forming and accomplishment of the competitive growth strategy of the international integrated companies.

Keywords: globalization, integrated corporate structure, business struggle, competitiveness, metallurgic industry

JEL Classification: F15, F6, L2, L6

1. Introduction

Under modern conditions when the economic space of the Russian Federation is intensively included in system of world economic relations, when the economic space transforms into a highly competitive environment, there is an important question arouse about

the increase of competitiveness of national companies of metallurgical sphere as an adequate response to demands of a dynamically changing globalizing market. The key feature of competitive behavior in conditions of Russian economy is the formation of integrated structures that initialize a variety of significant advantages on micro- and macro- levels of economic hierarchy:

- firstly, the increasing role of corporate link in conducting the effective competition and in formation of opportunity for creating completed technological chains;
- secondly, assistance in recovery of structural integrity of national economy and aligning of spatial characteristics of industrial capacity of the country.

However the questions upon the economy of corporate integrated activity as a strategic mechanism for strengthening competitive opportunities of companies for metallurgical sphere are still not enough developed and require careful attention from the scientific community.

Plenty of publications that have become the serious theoretical and methodologically basis for the research can be divided into two groups. The first group is the group of scientific works, their authors are P. Doyle (Doyle, 1994), J.H. Friar (Friar, 1995), C.M. Fiol (Fiol, 1991), C. Floyd, A. Little (Floyd & Little, 1998), Z.-Z. Lamben (Lamben, 1996), R. A. Fatkhutdinov (Fatkhutdinov, 2012) and others, these scientific works are dedicated to the study of nature of competitive advantages, to the viewpoints evolution on the sources of their formation. The second group is fundamental theoretical concepts that reflect specific features, logic development and institutional aspects of integration processes under conditions of competitive strain increase on the world market, which are performed in scientific works of S. Auktsionek, V. Zhukov, R. Kapeliushnikov (Auktsionek et al., 1998), Ju. Matthaei (Matthaei, 2001), R. Coase (Coase, 1960), M. Meskon (Meskon, 1997), S.F. Overturf (Overturf, 1994) and others.

In the course of analysis of degree of development of the researched problem it was found out that nowadays there are nearly non-existent publications dedicated to the study of industry-specific problems of integrated structures functioning from the position of evaluation their competitive opportunities and institutional reserves of increase of corporate organization efficiency in the process of realization of strategies of competitive growth. The majority of works are based only on analysis of current industry-wide problems of competitive development and they do not involve questions upon the formation of integrated structures as a strategic mechanism for the strengthening of market positions of companies in the Russian metallurgical sphere that are still basis for the Russian Federation industrial complex under conditions of globalization. They include scientific works of following authors: Ol.Ga.A. Romanova, D.V. Sirotin (Romanova & Sirotin, 2015), D. Filippou, M. King (Fillipou & King, 2011), I.A. Kondakov (Kondakov, 2011), H. Etemand, K. Salmasi (Etemad & Salmasi, 2011), O.A. Romanova, D.A. Pumpyanskii (Romanova & Pumpyanskii, 2005), L.V. Lapaeva (Lapaeva, 2005), I.V. Lipsits (Lipsits, 1996). As we highly appreciate the results obtained from the works of indicated authors, we consider it is necessary to point out that there are still many aspects requiring in-depth analysis, emendations and reworking.

Abovementioned circumstances outlined relevant and practical significance of the scientific inquiry, in terms of which the analysis of tendency of development competitive advantages of Russian integrated structures of metallurgical sphere on the domestic and world markers was carried out taking into consideration current globalization stage. The testing area is the metallurgical sphere leader in the Russian Federation – Group Public Company “Magnitogorsk Iron and Steel Works”.

2. Research Methods

Research of tendencies of corporate integrated processes development in the metallurgical sphere as a specific form of a competition defines the necessity for the system operation of the following methodological behavioral principles in order to make analysis more concrete.

Firstly, there is integration of institutional evolution approach and structural approach. Under conditions of institutional evolutional approach one can provide succession of analytical procedures, that is achieved by the application of unique parameters and various development stages study algorithm of Group Public Company "Magnitogorsk Iron and Steel Works" (Polterovich, 2007). Structural approach allows to transform elicited facts and trends into sustainable structures that reproduced on the different stages of the historical evolution, allows to bring to light collaboration mechanisms with other corporate parts of metallurgical sphere (Shagoyan, 2012).

Secondly, the succession of application of general economic analytical methods that is grouping of indicators, comparison, graphical representation of analyzed information, and also statistic analytical methods like relative quantity calculation, time series analysis.

And finally, there is awareness of the risk that one cannot comprehend to the full extend the whole variety of indicators reflecting the peculiarities of integrated processes under conditions of increase competitive strain on the world markets, that arouse during appraisal of one or another complicated system (Vasilieva et al., 2017).

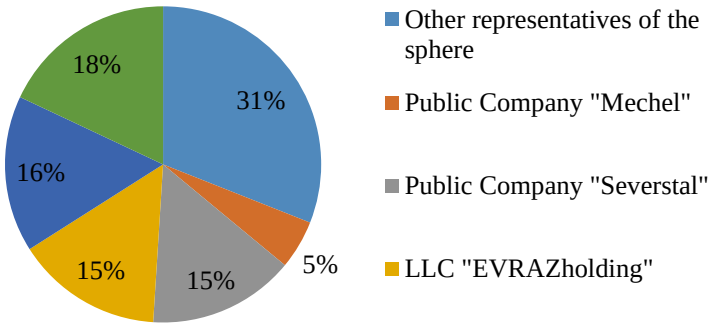
3. Results of the research

Within the framework of the article the attempt has been undertaken in order to elicit and to analyze the directions of activities of Russian integrated structures of metallurgical sphere in the field of forming and supporting competitive advantages, also taking into consideration peculiarities of current globalization stage on the example of the leader in the metallurgical sphere in the Russian Federation – Group Public Company "Magnitogorsk Iron and Steel Works". Historically Group Public Company "Magnitogorsk Iron and Steel Works" forms the status of mono-dependent of the large industrial center and vice-capital town of Chelyabinsk region in the Russian Federation – in town Magnitogorsk. On this purpose Kharitonova N.A., Kharitonova E.N. and Levinson N.L. wrote that: "Economic restructuring within the Russian Federation has considerably reduced the number of industrial giants, many of which proved unviable in the new economic conditions. However, those that remain are leaders in Russian industry, and their success determines the life not only of the local municipalities but often also of the whole region where they are located; as before, they continue to determine the economic and industrial potential of the region" (Kharitonova et al., 2007).

Rationality of choice of the testing area for the research is determined not only by the characteristic institutional transformations of Group Public Company "Magnitogorsk Iron and Steel Works" such as mergers and acquisitions of vertical type, but also by the position in the industry identified by the authors. Object of the research is in a top thirty of the largest steel manufacturers in the world, and is distinct by insignificant parity violation in the shares of the markets between "A league" metallurgic companies in the country such as Group Public Company "Magnitogorsk Iron and Steel Works", Public Company "Severstal", LLC "EVRAZholding" (Moscow), Public Company "Novolipetsk Steel", Public Company "Mechel". For example, in 2016 Group Public Company "Magnitogorsk Iron and Steel

Works" had 18% of market share of steel and cast-iron manufacturing, as you can see on the Figure 1.

Figure 1: The market structure of steel products in the Russian Federation in 2016, expressed in percentage



Source: author

Systematization of the practice of creation leading integrated structures in the metallurgical sphere in the Russian Federation, including the experience of Group Public Company "Magnitogorsk Iron and Steel Works", allowed to outline time frames of key stages of integrated interaction in the largest corporate structures and to characterize them (Table 1).

Table 1: The Stages of creation of corporate integrated structures in the metallurgical sphere in the Russian Federation

Stage	Brief description of the stage
4 2009 – till present time	The strengthening of integrated processes that is accompanied by transformation of closed corporate structures into the public companies, the quality improvement of corporate management and corporate culture development, acquisition of foreign assets, becoming full-participants of world market, realization of willingness for the further integration into innovative forms.
3 1999 – 2008	The market conditions improvement, switch to consolidation based on a common property, processes activation of mergers and acquisitions, formation of integrated structures of vertical and horizontal types, creation of industry alliances, inter-industry alliances and inter-regional alliances.
2 1994 – 1998	The adaptation of companies of metallurgical sphere to new conditions, the tendency for consolidation based on unions, associations of integrated companies mainly of vertical type providing with the concentration of the extractive and processing industries.
1 1990 – 1993	The collapse of the unique state sphere, the fragmentation of metallurgical sphere companies, the privatization, the creation of separate corporate structures based on stock ownership with participation of the government.

It is necessary to point out that outlined stages of integrated interaction of corporate structures are defined not only by the processes of becoming postindustrial economy, but also by the essential peculiarities of metallurgical sphere in comparison with the other types of industrial household, among which one can designate the following peculiarities: the limited number of participants in the sphere, the high capital intensity and energy intensity of manufacturing process, the complexity of technology life-cycle and far cry from other

industries scale of production, the difference in raw-material base and technology level of companies, the significance of geographical location, the transport infrastructure taking into account commitment to the foreign or domestic market, complexing and city-forming role of the majority of metallurgical sphere companies (*Kozin & Orlov, 2009*). Moreover, the market of steel products is highly competitive and is differed by cyclical demand, dynamic price variability and revenues in comparison with the other industrial fields.

Research and experience generalization of integrated processes development in the metallurgical sphere in the Russian Federation has revealed that current stage of set companies development having common goal-oriented and coordinated activity based on a special agreement or on a merger of assets, this stage is focused on the sustainable cost creation via search of advanced directions of development competitive advantages on the domestic and world markets taking into account peculiarities of current stage of globalization. For example, Group Public Company MMK in 2016 defined five priority areas of activity; Group developed and started the implementation of portfolio of strategic initiatives that are presented in the table 2.

Table 2: Priority areas of activity of Group Public Company "Magnitogorsk Iron and Steel Works"

Priority areas of activity	Strategic initiatives	Interim indicators of efficiency strategic initiatives realization		
		Indicator name	2015	2016
The positions strengthening on the priority markets	The satisfaction of current and long-range customer needs through the development of customer support system, the revealing of individual needs, customer feedback	The ratio of customer satisfaction by the quality of sold products and services	0,904	0,942
	The positions strengthening on most profitable geographical, industrial markets	The volume of shipped products on the domestic market, th. ton	733,0	781,4
	Increase marginal sales due to niche products development	The volume of shipped products on the world market, th. ton	62,2	72,3
Increase of operational and functional efficiency	The positions strengthening of low-cost manufacturer in the global metallurgical sphere due to the rapid implementation of the best global practices, the best available technologies	The level of cash-cost slab, $/ton	208,0	202,5
	The improvement of the functional development			
Increase of investment attractiveness	The return of earning power to shareholders due to the increase of profitability, the increase of money multiplier and the reduction of debt	The reduction level of debt burden, Net debt index/EBITDA	0,67	0,1
	Prudent financial and dividend policy, predictable plans of the company	Profit (loss) from steel products sales, th.$	-35,47	-5,33
The education of professional staff	Motivation of all employees in order to achieve goals based on professional education, satisfaction with job performance	Level of labour efficiency, ton/man	62,7	65,7
	Providing with high labour efficiency	The increase ratio in	4,38	4,40

		average wage per employee over the cost of a fixed set of consumer goods and services		
	Providing with the social protections	The cost of wage supplements, $/man	518,0	623,2
Social strategy	To minimize the impact on the environment	Gross emissions of polluting substances in the atmosphere, th. ton	205,3	201,8
		Specific emissions of polluting substances in the atmosphere, kg/ton of metal products	18,65	17,82
	Health promotion of employees, reduction in the burden of disease	Morbidity with temporary disability, days / 100 employees	915,60	842,75

Summarizing the content of the table No. 2 it is worth pointing out the efficiency of development directions of competitive advantages of testing area on the domestic and world markets, that were developed in 2016 and consequently their correlation with the global market conditions and development tendencies of world economic relations. At the same time, diversification is the most important tool in realization of strategic goal of the studied set of companies, in keeping the long-term competitiveness and sustainable development. Group Public Company "Magnitogorsk Iron and Steel Works" is a limitedly diversified corporate structure; its core is "Magnitogorsk Iron and Steel Works", and it also includes 64 companies (Table 3). The majority of the structural units of the vertical integrated corporate structures are located in the Russian Federation; however Group has in its structure LLC "Buskul", Group Public Company "Magnitogorsk Iron and Steel Works" takes the clay quarry on lease on the territory of the Republic of Kazakhstan under a long-term contract; Group Public Company "Magnitogorsk Iron and Steel Works" also has international trade companies such as MMK Steel Trade, AG MMK International S.A., ELITE COAST MONTENEGRO d.o.o. Budva. The structure of the testing area is not only the whole technical life-cycle of steel production: extraction and raw material processing, smelting of iron and steel, rolling and manufacturing of high-conversing products (processing stage), but also the financial cycle.

Table 3: Structure of Group Public Company "Magnitogorsk Iron and Steel Works"

The direction of diversification	Companies in the Group Public Company "Magnitogorsk Iron and Steel Works"
MMK – Steel products	OJSC MMK-METIZ, LLC Intercos-IV, MMK Metalurji Sanayi, Ticaret ve Liman İşletmeciliği Anonim Şirketi
MMK – Trading Company	LLC Torgovy dom MMK, LLC Tamozhenny Broker, LLC TFC of OJSC MMK, LLC MAGSTORN, CJSC Metalloservis, MMK Steel Trade, AG MMK International S.A., ELITE COAST MONTENEGRO d.o.o. Budva, LLC Torgovy dom MMK-Kazakhstan
MMK – Resource	LLC MCRW, LLC Ogneupor, JSC Profit, LLC Buskul, LLC MMK-COAL, Onarbay Enterprises Ltd., OJSC Chelyabvtormet, JSC Bashkirskie vtorichnye metally, LLC CherMetAktiv-C, LLC Profit Nizhny Novgorod, CJSC Profmet, LLC Promsyr'e, LLC SUTK, MMK-Mining Assets Management S.A. and others
MMK – Service	LLC Mekhanoremontny Komplex, LLC Stroitelny Komplex, LLC Shlakservice, LLC MMK-Informservice, LLC Remput, CJSC Magnitogorsky Zavod Prokatnyh Valkov, LLC MMK-UCHETNY CENTER, LLC Stroitelny Fond and others
Mintha Holding Limited	--
MMK – Finance	LLC IK MMK-Finance, LLC REGION, LLC MiG, MMK Finance S.A.

MMK – Resort	LLC Sanatorii Ybileyny, LLC Abzakovo, LLC Berezki, LLC Sanatorii Metallurg, LLC Interlux, LLC Upravlyayushchaya Kompania MMK-Kurort

4. Conclusion

In the process of achieving the aim that was set by the authors; that consists in the research of directions of development competitive advantages of the Russian integrated structures of the metallurgical sphere on the domestic and world markets taking into account peculiarities of current stage of globalization; the following fundamental result is achieved.

Firstly, the results of research efficiency in the directions development of competitive advantages of Group Public Company "Magnitogorsk Iron and Steel Works" on the domestic and foreign markets show the ability of metallurgical sphere companies to respond adequately to new demands arising from complex and multisided globalization processes.

Secondly, it was stated that Russian metallurgical industry is in the struggle in order to maintain long-term competitiveness and sustainable development; Russian metallurgical industry relies on the creation of diversified structures that include a complete technological chain – from raw material extraction till the production of final high-tech products. There are following fundamental reasons of the competitive strategy for the metallurgical companies involving the formation of diversified structures: the awareness of the need to improve reliability of supply of resources, production growth of goods with higher added value, which in turn increases the worthiness of the company for the shareholders and investors, and the obtaining of additional investment opportunities.

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PRACTICES IN MUNICIPAL WASTE MANAGEMENT IN THE CONTEXT OF GLOBALIZATION

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Abstract. This article aims to examine and approximate the current practice in the world of municipal waste management and the challenges that lie ahead in globalization. The article presents different systems of municipal waste management in the world. Among high-developed countries, a system for municipal waste management is presented in Japan. This system is characterized by applying the latest and most secure technologies currently used in the world. In this system the greatest emphasis is placed on reducing the impact of the waste on the environment in international and global terms. Significant is the high discipline in the sorting of waste by residents. The economic aspect of the technologies used is significant - they are extremely expensive. Another example is a developing country, which has much to do in the field of municipal waste management – India. There is a lack of awareness of the impact of the waste on the environment, also in the international aspect - many poisons go to the ocean affecting on a global scale. The article also presents the situation concerning the municipal waste management in EU countries. These countries aim to harmonize the legislation, which will eventually lead to a gradual international unification of applied solutions for municipal waste management. Such a comparison of applied solutions in the world allows to point out the causes of international differences and the global challenges facing individual regions in the world in the context of municipal waste management.

Keywords: municipal waste, municipal waste management, environment, ecology, globalization

JEL Classification: F60, M14, M20, O10, Q50

1. Introduction

In the era of globalization, more and more appreciated it is to take coordinated action on a global scale. It is noteworthy that neglect in one part of the world will have a real impact on the quality of life of the people in another. In many industries, efforts are being made to introduce the principles of sustainable development with a special focus on minimizing negative impacts on the environment.

The study approximated currently used in the world practice on the management of waste and the challenges faced in this respect in the face of globalization. There are presented systems operating in Japan, India and the European Union. However, we should be aware of the economic criterion, which largely determines the adopted solutions.

2. Japanese model of municipal waste management

Japan is a country that has one of the most developed waste management systems in the world. On the other hand, this system from the point of view of a resident is one of the most complex. Often, individual regions, cities and sometimes even neighborhoods have different rules for residents, and instructions often have dozens of pages.

From the philosophy of municipal waste management system, it is based on the principle of 3Rs: Reduce, Reuse, Recycle (Sakai et al., 2011). Japan has adopted the "zero waste" policy. It assumes specific actions:

"(1) Support the integrated promotion of environmentally sound waste management and the 3Rs based on country-specific needs (…)

(2) Contribute to Global Warming Countermeasures through Environmentally Sound Waste Management and the 3Rs (…)

(3) Prevention of Illegal Transboundary Movement of Hazardous Wastes (…)

(4) Actions to Establish a Sound Material Cycle Society at Regional Level in Asia (…)

(5) Collaborate with G8 Member Countries, International Organizations and Networks to Create a Global Sound Material-Cycle Society" (*Japan' s New Action Plan towards a Global Zero Waste Society.* 2008).

Currently, Japan has a highly developed system of separate waste collection. Residents are required to sort waste. Depending on the location, they must sort waste into different number of fractions, but is not usually fewer than 6, and sometimes even their number reaches 40. The individual fractions are received with varying frequency, some once a week or more often and some only once several months (e.g. batteries). Properly sorted waste should be placed in specially dedicated bags in the days in which they are received (Silva et al., 2017). Due to the Japanese mentality, one of the worst experiences of return is not properly sorted waste pasted "sticker of shame". For a very large number of Japanese it discredit the honor. Not uncommon in situations where neighbors reported the people who sort waste properly (Chifari et al., 2017).

The whole system based on such a meticulous sorting by the inhabitants, probably would not apply in Europe, due to differences in mentality. In Japan, however, a sense of duty and conscientiousness is very deeply rooted in the mentality of people. Based on this, carefully sorted and properly packed waste can immediately become secondary raw materials, without the need for re-sorting, as is often the case in European countries. (Silva et al., 2017).

The Japanese waste management system, apart from sorting waste at source, is largely based on waste incineration. In a country where there is no space for storage of waste, this solution allows to save precious land, and also of obtaining energy from waste (Tabata, 2013).

In Japan, many innovative solutions are used. One of the most interesting is in the Tokyo Metropolitan Area (Chen et al., 2014). Due to the lack of storage space on land and high land prices, it was decided to build a landfill at sea. The artificial islands were created in this way. Some of them are already reclaimed and can serve as a recreation area. At the Summer Olympics in Tokyo in 2020, it is planned to host some sports disciplines on the island. Currently, waste that cannot be burned, and some ashes after burning, debris, etc., are deposited on 2 artificial islands: Outer Central Breakwater Landfill Disposal Site (since 1977) and New Sea Surface Disposal Site (since 1998).

The Japanese municipal waste management system has minimal impact on the environment. The waste is managed in every way possible, and participants in this process the whole of society. On a global scale, Japan should be a model for other countries. Implementing the Japanese system in other countries would not always have to be successful because of differences in the mentality of the people. This system, however, is often regarded as exemplary and is consistent with the idea of sustainable development (Regnerova et al., 2016).

3. Challenges facing the waste management system in India

India belongs to a group of countries that have much to do in the field of waste management. The country is currently facing major challenges associated with the introduction of good standards in the field of waste treatment.

The widespread view in India is ubiquitous and littered. They represent a kind of obviousness in most states in India. A common view is throwing rubbish directly in front of residence or work, which is often very shocking for tourists. Trash is almost everywhere, and only a few cities are relatively clean. This is the result of many decades of neglect in this area. Changing the current state will certainly last a long time and will be costly.

In India are located two huge garbage dumps, included in the group of the 50 largest in the world: Deonar in Mumbai and New Delhi in Ghazipur (*Waste Atlas. The World's 50 Biggest Dumpsites - 2014 Report*, 2014). Deonar is India's oldest landfill and has been operating since 1927. It is estimated that 5 million people live within 10 kilometers of the site. Odor and smoke from burned waste causes asthma and other respiratory problems in many locals. It is also estimated that natural resources are seriously exposed to the negative impact of this landfill. The area less than 10 km is considered to be contaminated, and 7 km away is Mithi River, and 3.5 km there is sea. In the case of Ghazipur in capital city of India – New Delhi it operates since 1984. It is estimated that it employs about 420 people, of which 180 are children. Most of them suffer from asthma, tuberculosis, skin diseases and burns from fire. There are indications that groundwater has been contaminated with heavy metals. It is estimated that around 10 km live about 3 million people.

Despite the huge negative impact on the environment and the people, the whole waste management system in India is going through huge changes. The proposed technologies are capable of in an environmentally sound way to neutralize pollution leachate (Awasthi et al., 2017), so as not to have penetrated along with heavy metals into groundwater.

It should be recalled that this India is a large country with a fairly large variation, divided into 29 states which often apply a separate language. Unification of the waste management system in such a big country will be long-lasting if at all possible. It should also be noted that individual states differ significantly in many respects, including in economic terms. Financial conditions are an extremely important factor that can lead to the introduction of newer technological solutions and a change in the organization of the waste management system. (Dasgupta et al., 2017).

Implementation is also being made in individual solutions that are increasingly being encountered all over the world. Are implemented systems for the location of waste containers (Paul et al. 2017). They are also conducted research and deployment in order to treat the waste as an energy source (Nixon et al., 2017) and processing them in the combustion process (Jadhao et al., 2017).

In India, the existing municipal waste management system does not cover all property, and the view of trash is very common. Among the inhabitants of most regions, there is no habit of taking care of the cleanliness, accumulation and proper management of waste. The greatest thing to do is to educate the public. It is necessary to popularize the idea of recycling and segregation of waste. It will be a long and costly process, but the most important thing is that it has already started and the first positive changes are visible (Mali & Patil, 2016). As long as India waste management system does not come close to global standards, while on a global scale will be felt the negative environmental effects of improper management of municipal waste in India.

4. European Union countries and their differentiation in the field of municipal waste management

In the European Union, efforts are being made to harmonize the regulations on the management of municipal waste, which will eventually lead to the gradual harmonization of the applied management systems for municipal waste management. However, there are significant differences, for example, in the amount of municipal waste generated in individual EU countries and the costs of their disposal, as well as the solutions used (Triguero et al., 2016). The current practices in the EU countries regarding urban waste management in the face of globalization are probably the widest possible set of solutions.

EU legislation obliges the Member States to adapt themselves to the requirements imposed on them. Directive 2006/12/EC of The European Parliament and of The Council of 5 April 2006 on waste (*Directive 2006/12/EC*, 2006) introduces a number of waste regulations. Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives (*Directive 2008/98/EC*, 2008) introduced a hierarchy of management of municipal waste. The priority of municipal waste management is as follows: prevention, preparing for re-use, recycling, other recovery, e.g. energy recovery, disposal.

However, EU legislation enforces appropriate indicators for municipal waste management (Ulfik & Nowak, 2014). By 2020, the recycling rate for paper, metal, plastics and glass is 50%, and non-hazardous waste for construction and demolition 70%. There is also a need to harmonize waste management systems in individual countries (Kot & Ślusarczyk, 2013).

In addition, the European Union is introducing harmonized rules for waste sorting. Introduced clear rules on the number of fractions collected in a selective manner, with the establishment of the color containers and bags intended for individual fractions.

At present there is a huge variation in the amount of waste produced in kg per capita. Most waste in 2015 in EU countries, was generated in n Denmark (789 kg), Cyprus (638 kg), Germany (625 kg), Luxembourg (625 kg), Malta (624 kg) and Austria (560 kg). The least waste per capita in 2015 were generated in Romania (247 kg), Poland (286 kg), Czech Republic (316 kg), Slovakia (329 kg), Estonia (359 kg) and Hungary (377 kg).

It can be seen that the difference between the amount of waste produced in Romania and Denmark exceeds 313%. Keep in mind that there is considerable variation in GDP in Europe. Proper disposal of waste is associated with significant financial and time requirements (Simas et al., 2017). The directions indicated by the European Union in the management of municipal waste in accordance with the ideas of sustainable development however is not always possible to meet the anticipated time horizons (Cucchiella et al., 2017). Policy makers should also pay

attention to the amount of municipal waste generated by residents and from them also make the requirements for achieving the recycling or landfill.

5. Conclusion

The level of management of municipal waste management has a very real impact on life. As a consequence, this may involve high risks both locally and globally. With the use of modern municipal waste management solutions, the impact of municipal waste on the environment can be significantly reduced. However, modern solutions are associated with the high cost of building the system as well as the entire systems used to manage the municipal waste management. In addition to costs, the level of awareness of the inhabitants, their habits, traditions and education, is vital for improving the situation.

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METHOLODOLOGY OF PERFOMANCE MANAGEMENT IN THE RUSSIAN FEDERATION: THINK GLOBALLY, ACT LOCALLY

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Abstract. The introduction of the Performance Management (PM) can be considered as a universal methodology for assessing the activities of enterprises and systems inherent in most countries of the world. It is recognized as the fundamental method for the management of public enterprises (agencies) in OECD reports during the period of globalization. In the course of the combination of the global approach, taking into account local (national) features, the material in this article is constructed. In the beginning, the features and advantages of the PM are grounded, and the common attributes of its implementation are identified as a universal method of assessment and control applied to projects, agencies and countries. These include the phases of implementation and indicators of monitoring results. In parallel, the complexity of the method is described, predetermined by the difficulties in taking into account the specific features of the above-mentioned objects of evaluation. The second part of the article describes the implementation of the "results management" method, which is a Russian analogue of the PM. Specific successes are identified in the form of implementing the transition to strategic planning in the regions, developing a "roadmap for implementing results management", obligatory annual reports of ministries (enterprises, projects) on the results of work, new methods of budget planning.

Keywords: performance management, global strategy of control, problems of implementation in Russian Federation

JEL Classification: B41, M11, M16, G28, G38

1. Introduction

The Methodology of Performance Management is an ongoing process of ascertaining of how well or how poorly, a system is achieving to goals and objectives. It involves the continuous collection of data on progress made in this regard. Performance indicators, or measures, are developed as standards for accessing the extent to which the objectives are achieved (Crandall, 2010). With respect to management in accordance with the classical definition (Guinis, 2009; Hes et al., 2016). Performance Measurement is an continuous process of identifying, measuring and developing the performance of individuals and teams aligning performance with the strategic goals of the organization.

Despite the identified shortcomings associated with the inability to take into account the characteristics of the organization and its employees, the PM is used by most countries of the world. It allows to compare real achievements of systems with planned intentions (1), orients the system to implement strategic planning (2), reporting of results is built on a single Regulations, which increases its reliability (3), all information is open and included in a monitoring system available for analysis and practical use (4).

2. Basic methodological principles of PM: world experience

One should distinguish between assessment, which can be done once a year and often embody a complete waste of time to the collection and processing of documents, from the control system. Usually result in the following advantages of this system, ranking evaluation. For Employees experience increased self-esteem. It helps for better understanding of the behavior and results of their positions as well as identifying ways to maximize their strength and minimize their weaknesses. For managers experience developed a workforce with heightened motivation to perform. It gains greater insight to their subordinators, makes employees to become more competent. Managers enjoy better and timelier differentiation between good and poor performance, as well as clearer communication to employees about employees' performance. For Organizations experience made Administrative actions more appropriate. It makes organizational goals clearer to manager and employees. It enjoys to reduce employees misconduct and better protection from lawsuits. It facilitates organizational changes and develops to increase commitment on the part of employees. Organizations enjoy enhanced employees agreement.

Undoubtedly, these basic principles undergo certain changes that are reflected in the extensive literature describing these features. Here are some examples based on the new publication, which confirms the continuing interest in the topic. So, the characteristics of the method on different levels of governance identified in the reports of the OECD, for example, in reports "Government at a Glance" or of the World Bank (Rodriques, 2010), and in the classic monograph of Aguinis H. (Aguinis, 2009). Industry specifics of its implementation in the sphere of state control described by (Zhu et al., 2017; Vieira et al.; 2017, Peters et al., 2017; Toth, 2017). Iinteresting study (Eveleens et al., 2017; Ilysheva, 2016; Gregova & Dengov, 2016) describes the system of indicators recommended for innovative projects - national start-ups.

Of great importance are national characteristics of the implementation of the PM principles/ f.e. of Chinese by Shu Qh (Zhu et al., 2017), Liang Ma (Liang, 2017), of American by Gorman C, Meriac A and others (Gorman, 2017) or by D. Thompson (Thompson, 2009). No less interesting is comparative study, revealing the factors and particular patterns of implementation in different countries (Birdsall, 2017) and (Chakravarty et al., 2017; Copus, 2016). The difficulties of carrying out comparative studies related to big data monitoring are described by Andersson S. (Andersson, 2017). Features of PM in corporations are stated by (Lesakova, 2016; Cedliacikova, 2015; Kollar, 2015). The factor of realization of personal qualities of top managers as PM problem is reflected in the publication of Ridge and others (Ridge et al., 2017). Very interesting experience of PM improvement under the influence of the inclusion of public satisfaction indicators was described by Liang Ma (Liang, 2017) and Van Waeyenberg (Waeyenberg, 2017).

So, PM is a modern technology of public administration that embodies the principles of administrative reform, which are used in almost all countries. Described above general

principles, are complemented by a variety of particular practices and characteristics resulting from the specificities of the national or sectoral features.

3. Methodology peculiarities of the Russian model of PM (in the system of state governance)

In Russia the level of implementation of method of PM are much lower. This fact is described in not numerous publications, for example, (Yuzhakov et al., 2015), (Yuzhakov, 2010) or Gusarova, M. V. and Ovchinnikova, M. A. (Gusarova & Ovchinnikova, 2014) (two last researchers were responsible for the data collection from the part of the Russian Federation in the report on PM by International Bank for reconstruction and development).

The implementation of the new methodology of governance in the country started much later than in the West. Only in 2012, when the government (The Decree of the President (DP) of the RF №-601 dated 7.05.2012 «On main directions of improving the system of state governance») acknowledged the poor performance of government institutions as organizers of economic growth, was identified the assessment indices and have started monitoring. It is gratifying that the special clause was stipulated the inadmissibility of the revision of the targets of the ministries and agencies (as before) even with the deterioration of the macroeconomic situation in the country. It had gone out the notorious system of "closure orders" - special Russian methodology of social control. Another positive step was all the large and ever-expanding orientation of the budget for the program method of planning.

A little earlier, which also formed the prerequisite for the development of PM, was adopted in a number of government acts (DP of RF №536 from 2009 "On the basics of strategic planning in the Russian Federation"). It fixed the gain a strengthening of the role of strategy as the main planning guideline. In the country there has been a shift from considering the PM as one of the requirements of administrative reform to the mechanism of naturally forming new principles of public administration. New principles of governance moved from the rank of additional and not necessarily needed to inherent to modern type and so obligatory.

At least, it is enshrined the principle of departure from the approach of evaluating the results "on the dignity and merit" to "real-world successes, achievements, contributions to the country and the population thing". However, and here there is not a full turn, but only outlines the transition steps. So, instead of recognizing the role of the state as an organ serving the interests of the population, Russian scientists (advisers to the President of the Russian Federation), represent the role of the state as referee, who determines the rules of the game for economic agents. It is not the "exclusive policeman", but not yet caring service center. This approach is argued thus: the state must be "customer-centric", but it must simultaneously worry about the future of the country.

An important methodological feature of the Russian Federation is the denial of full (absolute) implementation of all eight essential features prescribed by the requirements of the United Nations as principles called system of “good governance”. Thus, in the framework of the UN development Program (1997) were named the following issues: participation (1), the rule of law (2), transparency (3), efficiency (4), consensus (5), equity and inclusion (6), effectiveness (7) and accountability (8). The fact that in the Russian version PM is called as management by results, speaks for itself. A new principle of macro and micro - planning is being introduced, but their effects and results are not public (open) but are in the "closed mode". They are not discussed

in the press, respectively, are not becoming the part of a general system of stuff rotation and of public accountability to the population.

The essence of the Russian version of the PM consists of 5 balances: the interests of all parties (1), accountability for results and freedom of administration (2), the support of initiatives and assess achievements (3), the interests of the present and the future (4), the expected results and available resources (5). Describing the specifics of the Russian model, it is impossible not to mention that it is a reflection of specific features of the society. Accordingly, it reflects its complexity, which takes place, of course, in other countries, but especially is significant for Russia. These features are the asymmetry of information availability (the higher is the level, the wider is access to information), the presence of the natural confrontation between the ministries as competitors for public funding. The high level of corruption, the centralization of power and resources lead to both kind of consequences: direct or indirect. The latter issue includes motivation of employees on the execution of the order from above to a greater extent than the performance of socially important tasks.

4. Implementation of PM: successes and challenges

One of outstanding researchers of PM in RF Yuzhakov V.N. suggests to allocate the following stages of its implementation (Yuzhakov et al., 2015):

- preliminary (its manifestations can be considered by the adoption of the Federal law (FL) N-115 dated 20.07.1995 "On state forecasting and programs for socio-economic development of the Russian Federation" and also the DP of RF N-594 of 1995 "Procedures for the development and implementation of Federal programs");

- the first stage (2003-2005), which beginning was due to the starting of administrative reforms and transition to a new type of governance. During it were adopted Fl N-79 of 27.07.2004 "On the civil service of the Russian Federation" and Resolution of the government (RG) N-249 from 20.04. 2004 "On measures to increase efficiency of budget expenditures", which recorded such things as the performance of service activities. They began to reform the civil service to the principles, relevant to administrative reform. At this stage began the implementation of measures to reform the budget process associated with the transition to budgeting focused on the result (1), embodied in the obligatory practices of annual reports on main achievements in activities (2) and implementation of departmental target programs (3). The stage has prepared a legal framework and methodological basis of introduction of mechanisms and tools of PM. At the same time during it were identified the following problems: the absence of definite strategic and departmental planning (2), the incomplete compliance of the adopted strategic plans and technology of result planning (3), the absence of a direct relationship between annual reports on main achievements in activities and procedures of budget/investment planning (4); insufficient level of development of monitoring and assessment systems (5), etc.

- the second stage is dated from 2005 to 2014. It was intended to implement the issues identified and was adopted the DP №536 (2009) "On the fundamentals of strategic planning in the Russian Federation", which established a hierarchy of target and departmental programs. It began a modernization budget planning for program principles, which ended in 2014. So, in this year were adopted 39 programs of the RF and 42 of state program, were planned to develop.

Many of the issues identified in the first stage as outstanding, remained in the same position and at the end of the second too. Failure to comply with the "Concept of long-term socio-economic development of Russia until 2020" is required to strengthen the responsibility of state officials. So, in DP dated 07.05.2012 was entrusted to Government to ensure the implementation of performance indicators in various areas of state policy for the period from 2012 to 2018. Held by Russian Academy of Sciences and State Services, a survey of experts identified the following assessment regarding the level of implementation of PM in the country: not implemented (17.6% of experts), introduced some elements (37,6), partially implemented (28,2), introduced, but the effect is lower than expected (16.5). In the survey, experts were asked to rate on a 5-point system the directions of implementation. There were obtained the following results: at the level of state policy (2,4), at the departmental level of the Federal bodies of executive power (2,8), at the regional level (2,6), at the level of subordinate institutions (2,4), individual (1,7). The same pattern was exhibited in expertise of the functions of government: the development of a state policy and standard-setting to 2,4, control and supervisory functions (2.8), rendering the state services (3.5), the management of state property (1,9) (Yuzhakov et al., 2015).

- the third stage is considered to be started in 2014. Its tasks are designated as:
- transition to a socially significant indicators of effectiveness (such as: achievement of global development goals or the final results of the state policy, the implementation of specific activities or measures the using characteristics of the resource potential of achievements etc.)
- introduction of a new generation of mechanisms and instruments of state control, which includes the codification of the 16 types of long-term planning with regard to identify their nature; the requirement to identify and commit procedure of the coordination of participants interests or rather a new level of justification for programs or policies; explicit responsibilities of each document in the public service; improving the system of monitoring indicators, including the development of interval target values; the introduction of a threshold system, the achievement of which indicates problems; the introduction of new forms of control and oversight (internal audit, outdoor monitoring the quality of rendering state services, ongoing assessment of performance, quarterly reports of departmental organizations).

4. The analyses of the "Road map" of the implementation of PM events

In order to trace the level of implementation of planned activities, reflecting the transition to the methodology of PM, was considered the "road map" of reforming directions drawn up in 3 branches. The evaluations based on judgments are presented in the table.1. The fact of existing of "the Road map" speaks about the success of the PM implementation, as this is one of the fundamental tools of its technology planning.

Tab.1. The directions of the "Road map" and the extent of their implementation up to 2014

	Directions of the "Road map"	Estimates
1. Correlation of objectives, results and resources of state authorities in the planning process		
1.1.	Summarizing the experience of implementing the mechanisms of PM in the Federal bodies of state power and bodies of state power in regions in 2004 – 2006	+
1.2.	The developments of general concept of introduction of mechanisms of PM	-
1.3.	Preparation of draft of Federal law on introducing amendments to the FL "On state forecasting of socio-economic development of the Russian Federation" and FL "About the general principles of planning, implementing activities and monitoring the results of activities of authorities of state and municipal governance in RF"	Partly (they were created, but not issues planned)
1.4.	Development of methods for the preparation of public strategies (policies), reports	Partly

	on results and main directions of activities of public authorities and programs for socio-economic development of the RF	
1.5.	Preparation of the draft FL on introducing amendments to the Federal law "About the government of the RF"	not realized
1.6.	The amendments to the Budget code regarding the implementation of the principles of PM and improving the quality of state and municipal governance and municipal finance	Partly
1.7.	The amendments of changes in regulations on executive bodies	Not realized
1.8.	A full inventory of budgetary target programs, their rating assessment, the adoption of a universal methodology for their estimation	Partly
1.9.	The creation and implementation of automated complex system of departmental, interdepartmental and inter-level strategic and budget planning	It is created but not for open public
1.10.	Creation of standards and methodical base in the field of planning of objectives, results and resources, introduction of PM mechanisms	Not realized
1.11.	Development of methodical recommendations on implementation of mechanisms of PM	Partly (not full set)
1.12.	Conducting of trainings, exchange of experience, discussion of cumulative practice	In the process of realization
2.Coordination of the used resources, achieved results and objectives of state authorities in their implementation		
2.1.	The introduction of elements of accounting management in the public authorities, allowing to obtain the reliable information about the employment, logistical and financial costs	Not realized
2.2.	The introduction of the principles of program management to achieve goals and outcomes, including the development of a mechanism of the matrix system	Not realized
2.3.	Implementation of the individual planning activities and ongoing assessment of results of activities of structural units	Partly
2.4.	Development and implementation of the principles of competitive allocation of resources between programmes/projects	Partly
2.5.	The introduction of a system for regular assessment of risks preventing the achievement of goals and outcomes, assessment of the contribution of the immediate results on the performance of the final socially significant results of activity	Partly
2.6.	The extension of the powers of the main managers of budgetary funds in terms of independent changes	Not realized
2.7.	Implementation of PM in subordinate organizations	Partly
2.8	Increased use of existing mechanisms for encouraging the implementation	Partly
3. Monitoring, assessment, encouragement and correction achievable goals, results and resources used		
3.1.	The introduction of the system of internal audit to assess the level of achievement of goals, performance of state officials	Partly
3.2.	The introduction of a system of external state audit, which allows independent assess of the level of achievement of goals...	Not realized
3.3.	The introduction of public monitoring system	Not realized
3.4.	The development and introduction in the organs of state power the unified forms of management and budget reporting	Partly
3.5.	The formation of a system of tangible and intangible incentives and encouragement in state and local departments	Partly
3.6.	The development and implementation of mechanisms for correction of purposes (politics), results of activities and resources in the system of state authorities and controlling	Not realized

Source: Compiled by experts from the Center for Economic and Financial Counseling, 2014

A similar study was conducted by a group Uzhakov V. There the level of implementation of events was estimated by experts. The general mark was 1,8 from 5,0 possible (Uzhakov, 2014).

5. Conclusion

In general, the researchers noted both achievements made and challenges faced during implementation. They call out the following Russian problems: redundancy of information, its not high overall quality (1), incomplete use of available resources for evaluation of PM (2), industrial/brunch difficulties with the mapping the outcomes and goals (3), overlapping responsibilities and lack of communication between departments in the conduct of assessment (4), excessive requirements for branch Ministries and Agencies (5), manipulation with figures (6), the dimension of what is not necessary to estimate.. But the main problem, according to the researchers, is the lack of political will.

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THE POSSIBILITIES OF USING CONTROLLING SYSTEM IN THE COMPANY AND THE RISKS ASSOCIATED WITH THE GLOBAL MARKET

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Abstract. The economic and political environment is currently quite unstable on the global market. Despite this fact, many domestic companies are trying to get into the global market. There are many reasons and motives for companies to enter global markets. These enters result in specific benefits and risks for each enterprise, which must be carefully considered and analyzed before entering the market. It is necessary to analyze the market conditions, before the company enters a new market. In addition, companies need to analyze the selected market not only before entering, but also during their operation. International companies have to cope with unexpected fluctuations in both financial and consumer markets. In modern, internationally operating companies, management cannot perform all the necessary functions on its own. Therefore, there is a need for a system that would perform the support functions of the management and thus facilitate its successful operation. This helper tool is a controlling system, successfully implemented and used in many of the world's most advanced companies. Controlling through its functions and through the controller helps the company to overcome unexpected fluctuations on the markets, prepare for them or even predict them. In addition to predicting future events, controlling also plays an important role in managing business risks. The company has to thoroughly analyze and evaluate the risks that arise from its participation in the business process and its effects on domestic and international markets.

Keywords: controlling, global market, market´s risks

JEL Classification: F60, M10, M21

1. Introduction

In the current turbulent period, the global crisis has been threatening the functioning of all market players. From small national entrepreneurs, through large multinational corporations to the economies of the world. Each of these entities had to reconsider their previous action and apply more effective crisis management. Only a successful "player" on the market succeeds in averting or at least partly mitigating the negative consequences of the crisis. (Foltinova & Dubcova, 2010) In the context of globalization and increasing competition among companies, the necessity of enterprises to align at speed of doing business became obvious (Sipos et al., 2014).

In addition to the crisis conditions, international business entities must face other risks posed by the international business environment. If they want to successfully expand to other

markets and continue to grow, they need to learn how to manage business risks properly. Consequently, they can achieve positive results in their transnational business activities. (Falk & Kosfeld, 2006; Ionescu, 2016)

The expansion of international economic relations takes place especially in developed economies. (Bansal & Lundblad, 2002). Over the last few decades, business risks have increased, especially in terms of the dynamics of economic development, scientific discovery, the speed of technical innovation, political transformation, changes in ownership structures and market connections in the conditions of globalization. In particular, this dynamics of change is reflected on the risk of price movements, interest rates, exchange rate risk, non-payment risk, or political risks. In business risk management, they are the most unstable and critical for an internationally active company, namely financial risk. (Hribar & Nichols, 2007) If the company wants to cope with the coordination of financial risk, it must handle its management not only in the domestic market but also in the foreign markets where it operates. This is where every single market has a certain specificity, which is also proportionally reflected in the area of financial risk management. This may involve different financial currencies or a deal with business partners. The internationally operating company must continually monitor the financial risks and manage them efficiently and rationally. (Laval, 2015)

2. Risk management

Risk management is an issue not only for the largest foreign companies. Risk is an issue that companies encounter in running their business every day (Pirtea et al., 2014). Globally, the international division of labor is growing in all sectors. There are some specific risks in international markets for international business. (Lesa, 2002) Compared to the domestic market, the risk of exchange rates, political, economic risk, as well as market, transport, or commercial, occur more frequently. (Brown et al., 1988) Liberalization processes over the last decades have resulted in rapid science and technology development, the removal of barriers to goods and capital transfers, and the globalization processes in general. On international markets, the business must face many risks and threats. (Foltinova & Spicka, 2014)

If an enterprise operates on international markets, it faces a much greater risk than if it works only on the domestic market. That is why management of international companies must be risk management. (Green, 2000) Businesses that only carry out their business on the domestic market face fewer risks and threats but these companies should not underestimate their risk management system in their structure. (Meznar, 2015) Risks are a daily part of the business environment (Janoskova & Kral, 2016; Kral & Janoskova, 2015A, B). In order to address the risks and threats, various risk management tools exist, such as the early warning system, risk mapping, risk calculation methods, risk monitoring, and so on. (Burgstahler & Dichev, 1997)

Table 1: Entry barriers to the international market

ENTRY BARRIERS TO THE INTERNATIONAL MARKET	BARRIERS TO FURTHER INTERNATIONALIZATION		
	Political risks	Commercial risks	Specific types of risks
Lack of knowledge	Government restrictions	Market risk	Risks of natural and technical disasters
Lack of connection to the foreign market	National export policy	Risk of non-surrender	Exchange rate risks

Lack of production capacities	High exchange rate	Risk of failure to deliver, commodity risk	Legal risks
Lack of distribution channels abroad	High fees for imported goods	Transport risk	Inflation risks
Lack of funds	Instability of the economic and political environment	Risk of non-payment	

Source: by authors

The risk management process is a systematic step-by-step process carried out by the business entity. (Mukhopadhyay et al.,1995) This process consists of four basic phases. The first step is to identify the potential risks that affect the business activity of the company. Once identified, the next step is a deep analysis. Then there is a process of control and funding. (Eisenhardt, 1985; Gavlakova & Gregova, 2013)

We can use a spreadsheet to identify the basic security risks. The magnitude of the risks, based on their verbal evaluation, is written in the fields of the table, which correspond to the intersection of their frequency and the expected result. (Butler et al., 2007)

Table 2: Risk quantification matrix

Importance (Impact)		FREQUENCY				
		Very often	Often	Occasionally	Infrequent	Rare
		A	B	C	D	E
Catastrophic	I	***	***	**	**	*
Critical	II	***	**	**	*	o
Border	III	**	*	*	o	o
Little	IV	*	*	o	o	o
***Extremely high risk		**High risk		* Little risk	o Insignificant risk	

Source: by authors

The risk matrix will help identify areas where an enterprise should focus on a crisis plan. Management must first develop a crisis plan in areas of extremely high risk and gradually address other areas. A well-prepared crisis plan will help company reduce the impact of threats or eliminate it completely. The basis for successful business management on the global market is to know as many threats as possible and to rank them properly according to priorities.

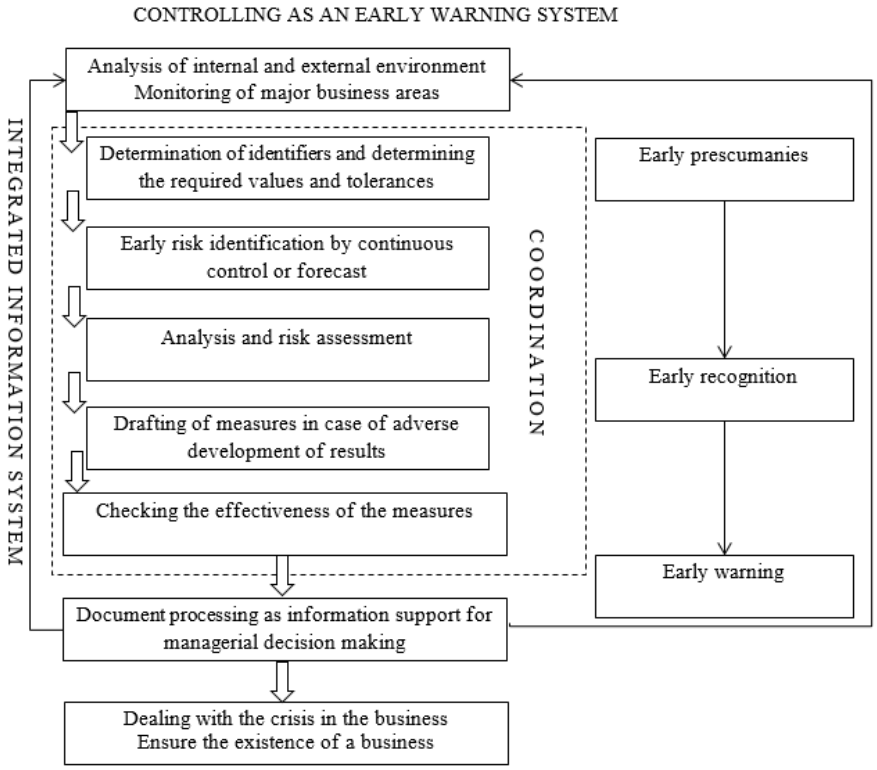
2.1 Controlling system

The goal of international business is to succeed in the international environment. This represents the company's ability to maximize revenue and minimize costs. From the point of view of risk, it is the minimization of possible losses with the effect on the assets of the company doing business abroad. (Dubcova & Foltinova, 2012) The risk management methods used on international markets are to exclude or limit the impact of an adverse event on a company's assets that could have an adverse effect on it. And to the contrary, it is crucial to manage risks so that you can use the positive development of the situation towards the goals and the value of the company. (Dubcova, 2011)

The Early Warning System is a form of information systems designed to predict future developments, new trends, threats and risks for an enterprise. (Obstfeld, 1994) A well-designed system allows you to create space for a potential business response to threats and possible risks, and it also improves business flexibility. These measures positively influence the position and development of the business on the market. Figure 1 below, we see an early

warning system in an enterprise based on controlling. The scheme shows its position and defines its role in the given system. (Postelnicu, Dinu, 2015)

Figure 1: Controlling as an early warning system in an enterprise



Source: by authors

Controlling provides an early identification of existing risks or risks that may arise in the future. By incorporating controlling into the system, the quality of enterprise management decisions will be enhanced. Satisfaction and quality of information allow for timely and correct decision making. (Sedlakova & Gajdosik, 2015) The rapid flow of information is secured through an integrated information system. Internal and external environment analysis is performed using strategic controlling tools. Operational controlling tools ensure the determination of the indicators required by the analysis and evaluation. The Early Warning System should include a draft of measures to avoid adverse business developments. (Tkac & Foltinova, 2014) After the necessary measures have been implemented, the effectiveness of the measures taken shall be checked. Subsequently, the controller will prepare a final report for the management. Business Leadership with Controller's decision-makers and business processes is controlled to prevent a possible business crisis. Companies in today's markets are facing high competition, rapid change in trends and political instability. (Bencova & Kalavska, 2009) Controlling and an early-warning system are gradually becoming part of many businesses. Businesses can secure their future existence.

Currently, there are various software solutions available on the market that help businesses to process and analyze the data they need. One of the most up-to-date tools is statistical and analytical software that can continually update its database of new situations. We can also see this as a sort of artificial intelligence. As an example, we can use IBM's Watson.

Watson is an IBM supercomputer that combines artificial intelligence (AI) and sophisticated analytical software for optimal performance as a "question answering" machine. The supercomputer is named for IBM's founder, Thomas J. Watson. The Watson supercomputer processes at a rate of 80 teraflops (trillion floating-point operations per second). To replicate (or surpass) a high-functioning human's ability to answer questions, Watson accesses 90 servers with a combined data store of over 200 million pages of information, which it processes against six million logic rules. The device and its data are self-contained in a space that could accommodate 10 refrigerators.

Applications for the Watson's underlying cognitive computing technology are almost endless. Because the device can perform text mining and complex analytics on huge volumes of unstructured data, it can support a search engine or an expert system with capabilities far superior to any previously existing. In May 2016, BakerHostetler, a century-old Ohio-based law firm, signed a contract for a legal expert system based on Watson to work with its 50-human bankruptcy team. ROSS can mine data from about a billion text documents, analyze the information and provide precise responses to complicated questions in less than three seconds. Natural language processing allows the system to translate legalese to respond to the users' questions.

Possibilities of using similar products in companies for risk prediction are large. However, the disadvantage remains relatively high financial difficulty. Such solutions are therefore particularly striking for large businesses where the risk is high and the consequences are extremely high.

3. Conclusion

The importance of risk controlling is increasing and we can say that it is gradually becoming one of the basic tools of corporate governance. The emergence of risks is associated with corporate activities. Business risks can be defined as business activities the implementation of which can lead to adverse consequences for the enterprise. The success of the business and the fulfillment of its objectives can be threatened by the risk. There are many reasons to deal with risks in corporate controlling. Risk controlling enables a better understanding of the causes and consequences of decisions. When taking strategic and operational decisions, the company management must take into account all the risks that the company is facing. Risk controlling allows to know and predict the future state of the business. Manufacturing companies are primarily concerned with technological risks, environmental risks, technical and project risks. Businesses are mainly focused on monitoring financial, political, and commercial risks. Businesses seek to monitor their liquidity, rate of return on receivables, company solvency, inventory tracking, client credit ratings, and so on.

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MODERN PROJECT MANAGEMENT APPROACHES IN GLOBAL CONDITIONS

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Abstract. In the current global environment and growing competition due to the increasing number of companies in the market, it is in the interest of each company to maintain its market position or strengthen it. A significant tool to achieve this interest and increase competitiveness is to apply the principles of project management in company management. For this reason, we have focused on clarifying not only the traditional approach to project management but also its modern approaches, which are adaptive and extreme project management. The aim of our paper is the critical assessment of individual project management approaches, their mutual comparison from different perspectives and the subsequent proposal for a general concept of the use of individual project management approaches in the conditions of Slovak as well as foreign companies. The paper is divided into three parts. In the first part, we are dealing with the basic theoretical background of individual approaches. The second part discusses the mutual differences of given approaches and is devoted to their mutual comparison. The third part contains the results of a questionnaire survey carried out on a selected sample of Slovak enterprises aimed at determining the level of use of given project management approaches. Subsequently, we demonstrate the importance of adapting the choice of project management approach to the specific problem (project) that is addressed in the company, on the results of the questionnaire survey.

Keywords: project management, traditional project management, adaptive project management, extreme project management, project.

JEL Classification: M10, H43, O22

1. Introduction

Project management originated in the 1950s and since then a number of methods, tools and techniques have been developed for project planning and implementing. At the very beginning, the project management was mainly used in architecture, chemical and later in the armament industry. Project management is referred to as supporting process of the organization (Janoskova, 2016). Over time, its methods and techniques have been significantly used in research and development, in the construction of motorways and pipelines, building new information and banking systems, manufacturing and assembling reactors, setting up and running medical insurance, or preparing large projects of large scale with the high costs and also high risks, involved large number of people (Wirkus, 2016). Project management was the most successful in the USA was in the late 1960s and early 1970s, particularly in connection with space research. Over time, it has been found that the principles of project management can be applied in other areas of human activity, whether it

is the development of informatics, the need for organizational transformation, the shortening of the life cycle of products, etc. (Kuchta et al., 2016).

At the present, project management has a wide application in various areas of life or the business environment. It has not lost its significance even in the above-mentioned areas, but it is increasingly being used in the public, private and third sectors, mainly thanks to public funds, which are committed to creating projects with a clearly defined purpose for their realization (Postelnicu, et al., 2015).

Project management has emerged as a tool for quick response to new needs and expectations. As a tool for introducing change, it is a highly complex management system that includes a number of disciplines. We can say that project management includes except its methods, product management, resource planning, human resource management, costs, risks, changes, quality, communication, procurement, and other disciplines too (Kordalska & Olczyk, 2016).

The development of project management reflects the development of management as a whole. This development began with the application of hard aspects in the implementation of projects and is now focused on the incorporation of soft socio-psychological aspects (Afonina, 2015). The development of the most appropriate system of soft and hard elements of project management mostly depends on the personality of the project manager, as well as on the project team and its members involved in the implementation of the projects (Popescu & Bitoiu, 2016; Svizzero & Tisdell, 2016). Project management is a new approach to management, based on the information, but nowadays it is mainly knowledge (Chlebikova, 2015). The most effective approach to project management is project-based approach, focusing on information sources as well as resources on project start-up and project implementation. An important fact is that intellectual capital exists due to people who use specific tools to ensure the implementation of project processes (Kaczorowska, 2015).

Project management methodology is usually defined as a set of methods, techniques, procedures, rules, templates, and best practices used in the project. It is typically based on a specific approach to project management, which defines a set of principles and guidelines that determine how the project is managed (Zhao, 2010; Attarzadeh & Hock, 2008; Attarzadeh & Hock, 2009). Given the growing trend of using new approaches to project management, it is clear that there is a need to combine different approaches (Spundak, 2014). The question then is whether it is and how it is possible to combine different approaches within the single project management methodology?

2. Literature Review and Comparison of Modern Project Management Approaches

There are many publications dealing with project management. However, the focus was on three different approaches to project management, namely traditional, adaptive and extreme (agile) approaches. The purpose of our publications survey (published from 1985 to present in the WoS international database) was to find out whether authors are increasingly more focused on traditional project management or their focus is increasingly focused on new, modern project management approaches.

Traditional project management and its possible confrontation with modern methods and approaches are addressed by authors Rodrigues & Bowers (1996), Stratton & Richards (1999), Kania, Hausden & Hitchner (2002), Spalek (2016) and Sayinisch (2010). Rodrigues &

Bowers (1996) pointed out the importance of integrating the knowledge and methods of individual project management approaches. The conclusion of Stratton & Richards (1999), and subsequently by Kania, Hausden & Hitchner (2002), is that critical project chain management is a viable alternative project management system that should be carefully considered in different sectors. In other words, the authors examined the use of the CCPM method in project management as an alternative to TPM methods. The result is that critical project chain management focuses the organization's attention on a number of key tasks that are really important for successful and timely completion of the project. Unlike more traditional project management practices, which rely heavily on milestone management and monitoring of individual tasks. According to this, the theoretical assumption is that a CCPM-controlled project is implemented more quickly than a project managed by the CPM method, or a traditional project in the bottom-up situation estimating the duration of the activity. Several studies have shown a possible shortening of the duration of projects when using CCPM. Sayinish (2010) wondered beyond the traditional thinking in project management and, through his survey, found that TPM could not meet the challenges and demands of coping with increased complexity in society, economy, and technology. New paradigmatic results of research and development in the latest natural and social sciences were analysed based on their importance for a new perspective in project management.

There are eight publications on adaptive project management, focusing on highlighting the importance of applying APM principles and methods in various areas of the business environment. Walkerden (2006) addressed the significance of APM in conflict resolution in his publication. Deleris et al. (2007) presented a method for improving project management based on a thorough analysis of the risks affecting activities in the project plan, i.e. the root factors leading to cost and time overrun and the optimization of resources assigned to each activity in the project plan in order to maximize the probability of completion in time and within the budget. One of the key elements of their method is the ability to adapt and learn the risk factors affecting activities during the project, allowing project managers to redistribute resources dynamically in order to ensure a better outcome in view of the updated risk profile. Lewardy & Browning (2009) addressed the importance of APM principles in project management for new product development. Other authors dealing with APM are, for example, Sulak, Wirkus, Kapoor, and others.

Publications that have been named "extreme project management" in the Web of Science database have searched badly. The reason is that the authors use the synonymous name to designate this approach, namely agile project management. That's why we were still thinking about agile project management. Agpm publications focused in most cases on their comparison with selected TPM and APM approaches. Significant publications were from Miklosik (2015), Wells et al. (2015); Kuchta et al. (2016) or Bustamante et al. (2016). Their results could be summarized as follows:

In Traditional Project Management (TPM), the project breaks down into complete detail. We know when it starts and when it ends. We know the amount of used resources, as well as the number of people who will work on the project. We know how to create the exact list of jobs the project team has to do to get the project to the end of its journey. So, we know what to do and what can threaten the project. The project plan and time schedule are relatively fixed, the project team strives to minimize the number of changes in the plan. The individual steps are planned in advance with great time in advance. This is an advantage and a disadvantage. Earnings, on the one hand, allow early entry into the project and reserve

resources. On the other hand, if there is a legitimate request for a change in the project, it is more complicated to implement it with the idea that the resources are already planned.

APM methods are aimed at changing, while TPM is all planned ahead. Therefore, TPM is still the most widely used method in project management. If we should decide which method and when we can use, we can tell this: The TPM method is useful to use when implementing projects where we know exactly what our goal is. APF methods work with changes. So, if something is not delivered to us or there is some error, we implement the missing element into the project so that we finally achieve the set goal. On the basis of this, it can be assumed that APM methods are suitable for projects with a high degree of uncertainty. For such projects, the scope and specification of output are not known in advance. Traditional project management practices are only applicable to these projects with difficulties, as the underlying bases - the subject of the project and the ability to estimate the extent, duration and cost of individual activities are not available. And we can use the CCPM method in a wider range of projects, as this reduces the execution time. Of course, we must be alert to possible errors and remove them as soon as possible.

A significant role in the realization of the project is also fulfilled by the project team itself. Each project that passes through your hands moves you forward. We recognize new practices, methods and improve our work with people. While there are many different good and interesting project management methods in the world of project management, the most common TPM is still. However, the authors have shown us that we have more options and it is up to us how we decide to implement the project.

3. Methods

The survey was carried out on a sample of 120 enterprises in the territory of the Slovak Republic using an electronic questionnaire. Business selection was done randomly and the selected respondents were contacted via email. 31 enterprises responded to this request, which represents a return of 26%. A survey of Slovak enterprises was made up of 42% of large enterprises and 57% of medium-sized enterprises and 1% of small enterprises. We have also divided the requested businesses according to their location. We have identified the self-governing region where the business is located. The largest group was made up of enterprises in the Trnava region (27%). The smallest sample is located in the Presov region (2%).

4. Results and Discussion

In the first part of the questionnaire we received information from the respondents regarding the use of project management principles in general, i.e. without emphasis on a specific project management approach. From the answers to the first question we found that 61.25% of the selected enterprises adhere to the principles of project management on a regular basis.

While in a group of medium and large sized enterprises the use of optimization methods is divided by the same proportion between the positive and the negative response, a positive response in the set of large enterprises prevails. Up to 89% of businesses said they regularly use the principles of project management. Only 1 enterprise from the sample does not apply the principles of project management. These findings suggest that applying the principles of project management in business practice is directly proportional to the size of the surveyed

enterprise. Interesting facts can also be obtained by differentiating responses to the given question by the classification of the sector in which businesses operate.

Our findings show that most of the industry groups dominate the use of project management principles, with the most positive responses being recorded in the manufacturing and IT industries. If the respondent stated that they did not use the principles of project management in their business, we identified the cause of the decision. The most frequent answer was that they do not consider their use to be necessary in the company. Another reason for non-use of the PM principles was the satisfaction with the results achieved in the company, which consequently does not necessitate the need to change something and hence the need to apply them. Several replies also concerned the financial side, as many businesses have said that the implementation of the PM principles is quite expensive. We consider this fact as one of the serious reasons for not using the PM principles in enterprises.

If in the surveyed enterprise the PM principles were applied, we found out exactly which PM approach they use. Our findings show that only 2 enterprises use an adaptive approach to project management. 10 enterprises are focused on extreme project management and the largest number of 19 enterprises, utilizing the principles of traditional project management in the performance of their activities. For businesses that use the principles of traditional project management, we were interested in whether they heard about PM's modern approaches. Most, 58%, were positive. That is why we were still interested in why they are still applying only the principles of traditional project management and do not focus their attention on modern PM approaches as well. The most frequent answer to the question was that their transition to new modern PM approaches was considered to be too risky and costly.

5. Conclusion

The aim of our contribution was to explain the theoretical backgrounds and to compare the individual approaches of project management with the aim of finding the state of use of modern PM approaches in the Slovak Republic. The results of the questionnaire were at the level we assumed, i.e. the significant prevalence of the use of the traditional project management approach. However, it is important and the claim that each of these approaches has certain advantages and disadvantages, but choosing the right one for the implementation of the project is for a particular project manager. Every approach gives us a distinct perspective and solutions. So, we can agree that the most important is the result. And the way to achieve it is only a means. Due to the correct preparation, the identified errors are eliminated and the occurrence of unexpected results is limited.

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THE INTERNATIONAL TRADE BETWEEN THE EU AND INDIA UNDER THE CONDITIONS OF GLOBALIZATION: A CASE STUDY OF PRACTICAL REGULATORY PROBLEMS IN THE EU AND INDIVIDUAL MEMBER STATES

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Abstract. One of the consequences of the socioeconomic phenomenon of globalization is the increasing use of preferential trade agreements to regulate the international trade relations. In this context, one of the directions of the EU's Common Commercial Policy towards the third countries in the last ten years has been the promotion of international trade with the rapidly developing countries of the BRICS region. For this reason, as early as in 2006, EU and India have launched the negotiations on signing a mutual preferential (free trade) agreement, which is continuing up to this day. It is obvious that such agreement could help to diversify the structure of EU's international trade, especially when trade relations with the more traditional trading partners (such as Russia) are becoming more problematic due to political disputes and sanctions. Therefore, the article seeks to answer the question what are the specific practical regulatory problems currently facing the international trade operators engaged in international trade business between the EU Member States and India and how they can be reflected/solved in the possible free trade agreement between them? To answer this question, the article discusses specific practical trade regulation issues in the last decade (since 2006), which are identified based on a case study of trade disputes between the EU and India on the World Trade Organization (WTO) level, EU level and national level of the EU Member States (using the Republic of Lithuania as the main example).

Keywords: globalization, international trade, preferential trade agreements, international trade disputes, Common Commercial Policy of the EU

JEL Classification: F13, F14, F15, K34

1. Introduction

International trade is traditionally considered as one of the main components and driving forces of the globalization process itself. However, even under the conditions of globalization the system designed for the regulation of international trade can be viewed as complex and fragmented, consisting form different layers and dimensions, such as multilateral (WTO) dimension, bilateral dimension (which includes various trade agreements between different countries) and even unilateral dimension, under which the international trade is regulated also with the help of individual measures adopted and implemented by the separate countries themselves. Besides, we should stress that the policies international trade is formed by various

actors which include both the international organizations (such as WTO), regional organizations (such as EU) or, as it was mentioned, undoubtedly also by individual states. The goal of this article is to review practical regulatory problems between two major trading partners - EU and the Republic of India which arise at various levels, including the level of individual EU Member States (taking the example of the Republic of Lithuania). The actuality of such topic can be based on two aspects. Firstly, in the recent decade, one of the strategic goals of the EU Common Commercial Policy in was the development of trade relations with the countries of the BRICS region, especially such major economically and politically important members of this group as Russian Federation, China, and India (Leal-Arcas, 2008). While the relations of the EU with some of these countries are constantly changing and are suffering some setbacks (such as, for example, political and economic relations with Russian Federation due to mutual sanctions introduced since the start of the crisis in Ukraine since 2014), the importance of relations with other BRICS countries is growing. Particularly, this includes the relations with India, which could be the major alternative market for EU exports. Therefore, already since 2006 EU has started the negotiations on the conclusion of a free trade agreement with India, however, during the recent years no clear progress has been made (European Commission, 2017). Thus, secondly, it is important to describe the practical problems (the object of the research), which arises in the trade relations between the EU and India and which is the obstacle to the free and transparent bilateral trade relations. The article focuses mainly and only on the regulation of international trade in goods by customs duties (tariffs) as the main measure applicable under the WTO. It is necessary to mention, that while some of the major aspects of such problems were researched by other scholars (Nedumpara, 2013; Wu, 2012; Naigen, 2012 and others) the novelty of this research is related to the fact that it presents comparative perspective of trade problems experienced both at the EU level and the level of individual EU countries (taking the Republic of Lithuania as an example).

2. Methods of the research

The main scientific method used in the article is the method of document analysis (content analysis of the decisions of various authorities (WTO dispute settlement bodies, decisions of the Court of Justice of the European Union (CJEU) and decisions of national judicial and quasi-judicial authorities in the selected EU Member State, i.e. the Republic of Lithuania) in the trade disputes (cases) regarding the trade in goods imported to the EU and its Member States from India. The authors also used theoretical methods such as systemic, historical and comparative methods to present the context of the selected cases and their importance for the practical regulation of trade between the EU and India. The criteria for the selection of trade disputes cases for the further analysis were time limitations (only the cases since 2006, i.e. since the start of free trade negotiations between the EU and India were selected[6]) and institutional limitations (the research included only the WTO trade disputes, judicial cases solved by the CJEU and the competent national tax dispute authorities in the Republic of Lithuania). The trade dispute cases which were selected for the analysis and which are further referred to and analysed in the chapters 2.2 and 2.3 are described in the Tab. 1 (which lists their institutional level as well as provides official references and general regulatory problems of international trade raised in them)

[6] We should stress that, as an exclusion, we have included three national cases (see cases No. 12, 13 and 16 in the Tab. 1) from the earlier years into the scope of the research, because of their close relationship with the later practices which was specifically highlighted and explained in the subchapter 2.3.

Table 1: The list of trade disputes (cases) regarding the trade in goods imported to the EU and its Member States from India since 2006

Case No.	The level of institutions which examined the case	Official reference to the case	General regulatory problems which were raised in the case
1.	WTO Dispute Settlement institutions	WTO dispute settlement case WT/DS409: European Union and a Member State - Seizure of Generic Drugs in Transit (2010). Access by Internet: < https://www.wto.org/english/tratop_e/dispu_ e/cases_e/ ds409_ e.htm>.	Guaranteeing the freedom of transit of goods in the EU
2.	WTO Dispute Settlement institutions	WTO dispute settlement case DS385: European Communities - Expiry Reviews of Anti-dumping and Countervailing Duties Imposed on Imports of PET from India (2008). Access by Internet: < https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds385_e.htm>.	Application of trade defense measures
5.	EU institutions (CJEU)	Case C-351/04, Ikea Wholesale Ltd v Commissioners of Customs & Excise, 2007 E.C.R. I-07723.	Application of trade defense measures
6.	EU institutions (CJEU)	Case C-535/06 P, Moser Baer India v Council, 2009 E.C.R. I-07051.	Application of trade defense measures
7.	EU institutions (CJEU)	Case C-533/10, CIVAD SA v Receveur des douanes de Roubaix, 2012 EU:C:2012:347.	Application of trade defence measures
8.	EU institutions (CJEU)	Case C-535/06 P, Moser Baer India v Council, 2009 E.C.R. I-07051.	Application of trade defence measures
9.	EU institutions (CJEU)	Case C-638/11 P, Council v Gul Ahmed Textile Mills, 2013 EU:C:2013:732.	Application of trade defence measures
10.	EU institutions (CJEU)	Case C-373/08, Hoesch Metals and Alloys GmbH v Hauptzollamt Aachen, 2010 E.C.R. I-00951.	Application of the rules on customs origin
11.	EU institutions (CJEU)	Case C-382/09, Stils Met SIA v Valsts ieņēmumu dienests, 2010 E.C.R. I-09315.	Tariff classification of imported goods
12.	National institutions (in the Republic of Lithuania)	*The decision of the Commission of Tax Disputes under the Government of the Republic of Lithuania of 24 March 2005 in the case "Concerning 2005-02-01 complaint of UAB "L".* Access by Internet: <https://www. infolex.lt/tp/>	Application of rules on customs valuation
13.	National institutions (in the Republic of Lithuania)	*The ruling of the panel of judges of the Supreme Administrative Court of Lithuania of 8 July 2004 in the administrative case No. A6-621/2004*. Access by Internet: < https://www.infolex.lt/tp/>.	Application of rules on customs valuation
14.	National institutions (in the Republic of Lithuania)	*The decision of the Commission of Tax Disputes under the Government of the Republic of Lithuania of 30 October 2014 „Concerning UAB „V1" 2013-08-07 complaint"*. Access by Internet: <https://www. infolex.lt/tp/>	The legality of sanctions imposed on traders which imported goods from India
15.	National institutions (in the Republic of Lithuania)	*The decision of the Commission of Tax Disputes under the Government of the Republic of Lithuania of 30 October 2014 „Concerning UAB „L1" 2013-11-08 complaint"*. Access by Internet: <https://www.infolex.lt/tp/>.	The legality of sanctions imposed on traders which imported goods

			from India
16.	National institutions (in the Republic of Lithuania)	*The ruling of the panel of judges of the Supreme Administrative Court of Lithuania of 3 February 2005 in the administrative case No. A[8]- 245/2005*. Access by Internet: <https://www.infolex.lt/tp/>.	Application of the rules on customs origin

Sources: Official websites of the WTO, CJEU and national courts (in the Republic of Lithuania)

The problems identified based on WTO and CJEU cases are presented in chapter 2.2 and the problems identified on the national level are presented in chapter 2.3. The general comparative aspects of these problems and the identified trends are summarized in chapter "2.4. Discussion".

3. Results of the research: practical regulatory problems of international trade between the EU and India on the WTO and EU level

To define problems currently facing the international trade operators which are engaged in international trade business between the EU Member States and India and to describe their characteristics it is necessary to overview the peculiarities of the multilateral trade regulation level, i.e. international trade disputes which arose on the WTO level as both India and EU are WTO members. As the object of this article is the international trade regulation means used by the EU and its Member States (i.e. the Republic of Lithuania) we would particularly stress trade dispute cases which were initiated by India against the EU since 2006. Here we may notice that two main disputed issues which were raised by India and they were related to freedom of transit (possible breaches of the trader rights to freely transport goods through the customs territory of the EU based on external transit procedure; WTO dispute settlement case WT/DS408: European Union and a Member State - Seizure of Generic Drugs in Transit, 2010) and to the application of trade defence measures (anti-dumping customs duties) against the goods imported from India (WTO dispute settlement case DS385: European Communities - Expiry Reviews of Anti-dumping and Countervailing Duties Imposed on Imports of PET from India, 2008). We should notice, however, that the most problematic issues lie in the areas related to freedom of transit and control by national customs authorities of goods in transit, as the above-mentioned case DS385: European Communities - Expiry Reviews of Anti-dumping and Countervailing Duties Imposed on Imports of PET from India, 2008, didn't have much practical impact due to the late appeal of India to the WTO (after the imposition of anti-dumping customs duties by the EU has already expired, see Nedumpara, 2013) and because in general both India and EU traditionally didn't view the application of anti-dumping customs duties against each other as problematic area (Wu, 2012). However, as we can notice from other examples from the practice of the CJEU which are discussed below, this general tendency certainly does not mean that there were no problems in this area at all.

Regarding the dispute WT/DS408: European Union and a Member State - Seizure of Generic Drugs in Transit, 2010 we should stress that it was based on the claim by India that EU Member States (the Netherlands and Germany) has repeatedly seized shipment of Indian goods (generic drugs) which were transported through the customs territory of the EU to the third countries (i.e. Brazil) and the transportation of which was based on the external transit procedure. In such cases, the EU Member States justified their actions and based them on the provisions of EU Council Regulation No. 1383/2003: it was presumed that the transportation of such products has violated intellectual property rights of the EU producers, which, consequently, was interpreted as the justification for customs authorities in the EU Member

States to detain and seize them (Cynthia, 2011; Naigen, 2012). The dispute has attracted received a lot of attention on the theoretical level as it was widely acknowledged that the WTO agreements (e.g. Article 5 of the GATT agreement and Article 51 of the TRIPS Agreement) establishes an exception to the application of customs procedures for the enforcement of intellectual property rights and the WTO Member States are not required to apply border control measures by customs authorities in order to ensure the protection of intellectual property rights of goods transiting through their territory or to detain such goods in transit (Mercurio, 2012; Neuwirth, Svetlicinii, 2015). It is noteworthy to mention that in this dispute, the EU essentially agreed with India's arguments and the need to consider the principle of the freedom of transit in this legal situation. The result of this agreement was the reform of EU law which lead to the adoption of the new Regulation No. 606/2013 of the European Parliament and of the Council on the enforcement of intellectual property rights by the customs authorities (2013). However, the use of evaluative criteria in the text of the Regulation (which has not been comprehensively explained in the case law of the CJEU; see Kur, 2013) and the absence of specific legal regulations designed to define the possibilities to control the goods in transit has already been widely criticized in legal doctrine since the moment when the reform was initiated by the EU (see e.g., Naigen, 2012). Thus, the specification of such criteria should undoubtedly be included in the provisions of the possible EU-India free trade agreement, as India remains a major producer of generic medicines for the markets of other countries.

On the other hand, the analysis of trade disputes concerning the import of goods from India that originated at the EU level and has been reflected in the practice of the CJEU as the supreme judicial authority in resolving disputes concerning the actions against EU legislation (acts) and providing interpretations of the EU law (preliminary rulings) to the national courts of the EU Member States, lets us to observe between these disputes the prevailing majority of cases was related to the application trade defence measures (anti-dumping customs duties). Such cases accounted for more than sixty percent of disputes in the analyzed category and analyzed period (five out of eight identified cases since 2006). It is important to mention that in this category of disputes, for example, in cases C-638/11 P, Council v Gul Ahmed Textile Mills, 2013; C-535/06 P, Moser Baer India v Council, 2009; C-351/04, Ikea Wholesale Ltd v Commissioners of Customs & Excise, 2007 the CJEU has ruled on the possibility to apply the WTO law (WTO agreements) in the legal system of the EU to regulate trade relations with third countries, namely, India. In this context, it is important to note, that in general its position was that the CJEU has rejected the possibility to grant direct effect to the WTO rules and has refused to review the legality of the EU acts (EU regulations setting anti-dumping customs duties on imports from India) based directly on the WTO law (Errico, 2011; Hix, 2013). On the other hand, as it is noted by R. M. MacLean (2013), such formal and restrictive position was modified through the interpretation of EU legislation, as the CJEU has explained EU law in the above-mentioned cases exactly in such way as the same questions are understood by the WTO dispute settlement authorities, for example, the CJEU has criticized the practice of the EU institutions regarding the calculation of the dumping margin of goods imported from India and declared it as unlawful (see e.g. case C-351/04, Ikea). In addition, during the analyzed period and in cases, concerning the taxation of goods imported from India with anti-dumping customs duties, the CJEU has developed the concept of the possibility to challenge EU acts directly before the EU courts which have previously been considered as unclear and was often criticized (see Bast, 2012). For example, in the case C-533/10, CIVAD SA v Receveur des douanes de Roubaix, 2012 (para. 33), the CJEU formulated the position that if the applicant was not entitled to appeal to EU courts to challenge the validity of the EU

Anti-Dumping Regulation which sets anti-dumping customs duties, such a possibility should be ensured by the national courts of the EU Member States (using the procedure of preliminary ruling). Besides, as we can notice, from the cases of the CJEU C-382/09, Stils Met SIA v Valsts ieņēmumu dienests, 2010, and C-373/08, Hoesch Metals and Alloys GmbH v Hauptzollamt Aachen, 2010, the customs authorities in the EU Member States experienced difficulties while determining the customs origin of imported goods (case C-373/08) and by applying their tariff classification rules (case C-382/09) which, while being applicable directly and uniformly throughout the EU are written linguistically differently in all EU Member States. Therefore, we may notice that the different EU Member States sometimes lack common understanding about the main concepts of EU Customs policy towards the third countries and such problems are presented in the second chapter of the research, by taking examples from the practices in the Republic of Lithuania.

4. Results of the research: practical regulatory problems of international trade between the EU and India on the national level of the EU Member States (Republic of Lithuania)

While discussing the practice of the Republic of Lithuania as the EU Member State in the administration of customs duties and other import duties applied to goods imported from India, several main areas can be distinguished which essentially coincide with the main factors (elements) determining the calculation of import taxes. The application and calculation of the largest part of the import duties depend on how the customs value of the imported goods is calculated. The transaction value method (based on the actual transaction price of imported goods) is considered as the main (basic) method for its calculation (Article 1 para. 1 of the Agreement on Implementation of Article VII of the GATT, 1994; Article Union Customs Code, 2013). After the accession of the Republic of Lithuania to the EU, issues of an analogous nature immediately were raised in the practice of the national courts and other institutions, which were authorized to investigate tax disputes, specifically in disputes concerning goods imported from India (see, for example, the ruling of the panel of judges of the Supreme Administrative Court of Lithuania of 8 July 2004 in the administrative case No. A^6-621/2004, 2004, and the ruling of the panel of judges of the Supreme Administrative Court of Lithuania of 3 February 2005 in the administrative case No. A^8- 245/2005). Although these disputes were examined in 2004-2005, the problems raised in them are closely linked both to the case law of the CJEU during the analysed period (since 2006) and to the evolution of national practice and national law over the analysed period.

It should be noted that the emerging national practice in the referred cases has remained quite controversial. For example, in the referred case No. A^8 - 245/2005, the national authorities took the opposite view and stated that in the absence of the possibility to apply the transaction value method, the customs authorities could switch automatically to the application of comparative prices of the special national database (PREMI database). It is worth noting that this provision was also once again used in the separate recent cases of customs disputes (the ruling of the panel of judges of Supreme Administrative Court of Lithuania of 22 March 2016 in the administrative case No. A^{214}-261/2016, 2016). However, when similar recent disputes arose in cases where the litigants challenged the determination of customs value of goods imported from other BRICS countries (such as China and Russia). In these cases (see, for example, cases C-291/15, EURO 2004. Hungary Kft. v Nemzeti Adó- és Vámhivatal Nyugat-dunántúli Regionális Vám- és Pénzügyőri Főigazgatósága, 2016 (related to the imports from China) and C-263/06, Carboni e derivati (related to the imports from the

Russian Federation), CJEU has recognized the possibility of applying comparable prices in the process of customs valuation, following one specific condition: the importer must, in all cases, be given the opportunity to prove the validity of the declared transaction value. Therefore, the national practice which allows switching automatically to the application of comparative prices seems highly debatable.

In addition to the issues of customs valuation concerning goods imported from India, other legal problems which arose at the national level after Lithuania joined the EU concerned the determination of the customs origin of goods, which were imported from India (see for example the decision of the Commission of Tax Disputes under the Government of the Republic of Lithuania of 24 March 2005 in the case "Concerning 2005-02-01 complaint of LLC "L", 2005). The case of this dispute is closely related to the later practice of the CJEU (from the period under review, i.e. since 2006), and to the evolution of subsequent national practice. In its above-mentioned decision, the national quasi-judicial authority for the settlement of tax disputes (Commission of Tax Disputes under the Government of the Republic of Lithuania) has emphasized that the origin of imported products should be confirmed only by official documents issued by public authorities in the exporting countries and that the taxpayer itself is entitled to prove its correctness. It should be noted that such position of the national authorities, was reiterated later in other examples of national case-law (the ruling of the panel of judges of the Supreme Administrative Court of Lithuania of 20 January 2011 in the administrative case No. A^{442}-220/2011, 2011). On the other hand, the practice of the CJEU during the analysed period (considering imports from India), took a more flexible position and has not limited the possibility of relying on other sources of evidence (case C-373/08, Hoesch Metals and Alloys GmbH v Hauptzollamt Aachen, 2010). Accordingly, we should stress that the conclusion of a free trade agreement between the India and EU and establishment of detail rules on customs origin of goods as well as procedures for proving the customs origin would undoubtedly help to resolve this discrepancy, since at the multilateral (WTO) level the negotiations on more detailed non-preferential rules of customs origin has currently stalled and are not progressing.

The last aspect of disputable issues which arose at the national level and which were related to the taxation of goods imported from India was the application of sanctions for breaches of the EU and national customs legislation. Such issues were addressed in the decisions of the Commission of Tax Disputes under the Government of the Republic of Lithuania of 30 October 2014 „Concerning UAB „V1" 2013-08-07 complaint", 2014, and of the 30 October 2014 „Concerning UAB „L1" 2013-11-08 complaint"), and they were related to the exemption of a taxpayer from already calculated and charged interest on unpaid import taxes arrears which have originated due to the international trade operations and import of goods from India. We should stress that the main problem in these cases is the legality of national regulations (the national rules set in the Law on Tax Administration, 2004, (Article 101, para. 1, section 2) on such exemptions itself as the provisions of the Union Customs Code (Article 114, para. 3) only allow refraining or exempting of a taxpayer from charging interest due to its economic or social status (conditions). Therefore, it seems necessary to clarify such national rules by indicating that the exemptions from interest on the arrears of customs duties are allowed only due to the difficult economic and social situation of the debtor (taxpayer) (Article 113, para. 1, section 3).

5. Discussion

The discussed cases let us draw attention to several major links which describe practical problems arising in the international trade between the EU (its Member States) and India and be a starting point for a scientific response on how the regulation of international trade conditions between the EU and India could be improved in the ongoing trade negotiations. Firstly, we may notice that the absence of clear legal conditions for control of goods transported from India *via* the EU to the third countries based on transit procedure. Secondly, certain tensions are also created by the strict attitude of the CJEU towards the application (direct effect) of the WTO law in the EU and it especially concerns imposition of trade defense measures against imports from India. Thirdly, on the national level in the EU (considering the practices in the specific Member States) we encounter different practices of national customs authorities regarding customs valuation, the establishment of customs origin and the imposition of sanctions on traders (importers) which should be eliminated.

6. Conclusion

Based on the results of the research, the authors would like to conclude that the process of globalization clearly has not achieved elimination of existing international trade barriers and obstacles. Analysis of trade dispute cases between the EU and India shows that while both parties are pursuing the goal to conclude a free trade agreement, the practices of the EU and its individual Member States towards the regulation of international trade in goods remains inconclusive and not harmonized, therefore, much more attention should be paid towards the ensuring of the uniformity of Common Commercial Policy of the EU in order to make the EU an attractive player of the international trade market.

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PREDICTION MODELS IN THE CONTEXT OF THE INTERNATIONAL ENVIRONMENT

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Abstract. In the international context, a prediction of future insolvency or solvency has been one of the major areas of a corporate finance research for a long time. Using a variety of modelling techniques, many prediction models were formed, particularly in the developed economies of the west. The prediction of the financial health of a company is necessary not only for the company itself but also for the national economy. Thus, the partial aim of the paper is to bring a brief history of prediction models in the globalized context, with main emphasis given to international economic environment of V4 countries. The main aim of the paper is to suggest which model to use to predict the financial health of Slovak enterprises taking the results of the comparative analysis of V4 prediction models into account. By analysing and comparing of the V4 prediction models, we found that the processes of prediction and evaluation of an enterprise depend on a suitability of the chosen model and the resulting value reflects the environment in which the company operates as well as the ability of its partners to pay their liabilities. On the basis of the results of the international comparative analysis, the most suitable model is recommended to be used to assess the financial health of Slovak enterprises.

Keywords: prediction model, insolvency, V4 countries, globalization

JEL Classification: C53, F60, G17

1. Introduction

Prediction models are based on the evaluation and interpretation of the results achieved in the current period and they allow to forecast the development of the economic and financial situation of the company. Various models of financial health predictions were created at different time and space and therefore their application in Slovak conditions can be questioned (Svabova & Kral, 2016). The question is if a model based on country-specific data can be used to predict the financial situation of companies in other countries. It is also necessary to consider the classification or focus of the companies for which the model was developed. The accuracy of prediction models is reduced significantly, if the model is used in another industry, another time or in a different business environment compared to the data used to derive the model (Bartosova & Kral, 2016). There are various arguments against the non-critical usage of the results of foreign prediction models. For example, in the case of Altman´s Z Score model, there is a different prediction ability of the market value of equity indicator in the US economy and in Slovakia (Adamko & Kliestik, 2016; Dengov & Kliestik, 2015). The domestic capital market is incomparably less developed than the US capital market, and thus the indicator does not reflect market expectations. It is assumed that the ratio of the market value of the equity and the book value of the debt will be defected in many

businesses and will not contribute to the correct discrimination of enterprises in conditions of the SR (Svabova & Durica, 2016). The aim of this study is the comparative analysis of prediction models formed and used in the countries of the Visegrad group. Using the selected prediction models, we compare their prediction and classification ability and the prediction power to assess the financial situation of the chosen international company.

2. Literature Review

The first researches in the field of future financial distress and indications of enterprise development appeared in the thirties of the 20th century. In 1931, Fitz Patrick published a study comparing the development of indicators of prosperous and non-prosperous businesses (Zalai, 2007, p. 89). He pointed out that the development of selected corporate indicators of threatened companies was different long time before the economic difficulties. Merwin (1942) also searched that issue and he compared the arithmetic means of selected corporate indicators in prosperous and non-prosperous businesses. Later in 1966, this type of financial analysis, known as an ex-ante analysis, was developed in the work of M. Tamari and V.H. Beaver and two years later in the work of E.I. Altman (Micudova, 2013). These researchers are considered to be the founders of the financial health predictions which core effort is to predict financial developments in individual enterprises and to prevent them from financial collapses and other serious disorders.

Since then, authors and researchers in the field of predictions models have verified dozens indicators, which they think can help to predict the insolvency. For these indicators, it is characteristic that their level in prosperous or non-prosperous enterprises is different as well as the divergent development of indicators long time before the crisis itself. Methods of forecasting a financial situation require the overall financial and economic performance of a firm to be expressed by a current and unambiguous expression. (Zogning, 2017; Van Heerden & van Rensburg, 2017). Thus, it is necessary to assume the choice of well-differentiated indicators and method summarizing them (Zalai, 2007, p. 91). Another important thing is to consider the conditions of the national economy, its legislation, operation of financial instruments, but also the external factors, prediction models can indicate the risks, weak and strong points of the financial health of the company .

In the Visegrad group various prediction models were formed, such as Chrastinova (1998), Gurcik (2002), Zalai (2007), Gajdka & Stos (1996), Prusak (2005), Maczynska (2004), Hamrol et al. (2004), Holda (2001), Virag & Hajdu (1996), Doucha (1995) and Neumaierova & Neumaier (1995, 1999, 2001, 2005). Specific conditions in Slovak and Czech environment were searched also by Rybarova et al. (2016), Karas and Reznakova (2014 A, 2014 B), Boda & Uradnicek (2016) who focus on specific economic areas.

3. Methodology

For the purpose of general comparison of prediction models within V4 countries, we chose a Slovak company, which is a diversified Central European ferroalloy manufacturer. The history of the company dates back to 1952, when the first ferroalloys were produced in Slovakia. At present, the company manufactures and offers its customers a wide range of ferroalloys on the basis of manganese and silicon, and other product profiles filled with carbon, sulphur, etc. We chose the company because it is located in the middle of the metallurgical centres of Slovakia, Poland, Bohemia, Hungary and Austria and is one of the most important suppliers of ferroalloys for the Central European region. Nearly 93% of its

production is located in these markets. To meet the main aim of the paper, we applied the prediction models developed in the specific conditions of the V4 countries using the financial statements of 2014, 2015, and 2016 of the chosen ferroalloy company.

Czech prediction models

Index IN 05 – modified version of the IN01, based on the information of the industrial companies from 2004:

$$IN\ 05 = 0.13X1 + 0.04X2 + 3.97X3 + 0.21X4 + 0.09X5 \quad (1)$$

where

X1 = Total assets / Total liabilities; X2 = Earnings before interest and taxes / Costs of interest; X3 = Earnings before interest and taxes / Total assets; X4 = Total revenues / Total assets; X5 = Current assets / Short-term liabilities

Zones of discrimination: IN05 > 1.60 indictaes positive financial situation in the future; 0.90 < IN05 ≤ 1.60 grey zone of unallocated results and if IN05 ≤ 0.90 future of the company is threatened by financial difficulties

Doucha´s balance analysis - is a set of indicators originated in Czech conditions, which is primarily used in industrial enterprises but can be adjusted and used according to the analyst's needs and experience (Doucha, 1995). We distinguish three balance analyses. Balance analysis It is represented by a very quick business valuation. It provides an insight into the financial situation of the company and it is suitable for basic intercompany comparison, but not for fundamental decisions (Ručková, 2011). Balance analysis is focused on the indicators of stability, liquidity, activity and profitability. The overall result is the weighted average of the assessment of manufacturing enterprises and trading companies. Balance analysis III extends the previous analysis of a dynamic factor, it is more detailed and can provide a more objective view of the corporate financial situation. The analysis also includes the cash flow calculation. For best results, however, it is ideal to know the quarterly results of the company of, at least, last 2 years.

Slovak prediction models

Model of Chrastinová (Ch-index) was formed of the data of Slovak agricultural enterprises in the following form (Chrastinová, 2008):

$$CH = 0.37X1 + 0.25X2 + 0.21X3 – 0.1X4 – 0.07X5 \quad (2)$$

where

X1 = EAT / total capital, X2 = EAT / revenues; X3 = Cash flow / debt; X4 = debt / revenues; X5 = debt / total capital.

The classification of the resulting values: CH > 2.5 symbolizes healthy financial situation of the company; -5 < CH ≤ 2.5 neutral zone of unallocated results and if CH ≤ -5 unhealthy financial situation of the company.

Model of Gurčík (G-index) is based on the discriminatory analysis and financial indicators. The model also focuses on the agricultural area (Miklovicova & Gurcik, 2009):

$$G = 3.412X1 + 2.226X2 + 3.277X3 + 3.149X4 – 2.063X5 \quad (3)$$

where

X1 = retained earnings / liabilities; X2 = EBT / liabilities; X3 = EBT / revenues; X4 = Cash flow / liabilities; X5 = inventory / revenues.

The classification of the resulting values: G > 1.8 is for healthy financial situation of the company; -0.6 < G ≤ 1.8 neutral zone of unallocated results and G ≤ -0.6 for unhealthy financial situation of the company.

Polish prediction models

Model of Mączyńska is defined in the following form:

$$ZM = 1.5X1 + 0.08X2 + 10X3 + 5X4 + 0.3X5 + 0.1X6 \quad (4)$$

where

X1 = (gross profit + amortization) / liabilities; X2 = assets / liabilities; X3 = gross profit / assets; X4 = gross profit / revenues; X5 = inventory / revenues; X6 = revenues / assets

If the resulting value is lower than 0, the company leads to default. If the value of ZM is higher than 0 but lower than 1, the company has weak financial situation, but is not threatened by a bankrupt. If the value of ZM is higher than 1 but lower 2, the company has good financial situation, very good financial situation of the company is presented by the ZM value which is higher than 2.

Model of Gajdka and Stos uses a multifactorial discriminatory analysis:

$$G=0.7732059 – 0.0856425G1+0.0007747G2+0.9220985G3+0.6535995G4-0.594687G5 \quad (5)$$

where

G1 = revenues / assets; G2 = short term liabilities * 360 / costs of economic activity; G3 = EAT / assets; G4 = EBIT / revenues; G5 = liabilities / assets.

Zone of discrimination: if G < 0.45 the company is threatened by a bankrupt and G > 0.45 indicates good financial situation of the company

Model Poznanski is famous for its high prediction ability of 92,98 % (Hamrola et al, 2004b, s. 36) having the form:

$$FD = 3.562X1 + 1.588X2 + 4.288X3 + 6.719X4 – 2.368 \quad (6)$$

where

X1= net profit / assets; X2= (current assets-inventory) / short term liabilities; X3= fixed assets / total assets; X4= profit from sales / revenues from sales.

Zone of discrimination: FD < 0 defines bad financial situation of the company in the future and FD > 0 positive financial situation of the company in the future.

Model of Prusak has the following form predicting the bankruptcy one year ahead:

$$Z = 6.5245X1 + 0.1480X2 + 0.4061X3 + 2.1754X4 – 1.5685 \quad (7)$$

where

X1 = operating profit / assets; X2 = operating costs / short term liabilities; X3 = current assets / short term liabilities; X4= operating profit / EAT.

The classification of the resulting values: $Z > 0.65$ positive financial situation of the company; $-0.13 < Z \leq 0.65$ grey zone of unallocated results; $Z \leq -0.13$ unhealthy financial situation of the company, threat of a bankrupt.

Model of Hold in the following form predicts the financial situation of the company one year ahead:

$$ZH = 0.605 + 0.681X1 – 0.0196X2 + 0.00969X3 + 0.000672X4 + 0.157X5 \quad (8)$$

where

X1 = current assets / short term liabilities; X2 = total assets / assets; X3 = EAT / assets; X4 = short term assets / costs of economic activity; X5 = revenues / assets.

The classification of the resulting values: $ZH > 0.1$ is for healthy financial situation of the company; $-0.3 < Z \leq 0.1$ for grey zone of unallocated results and $Z \leq -0.3$ unhealthy financial situation of the company.

Hungarian prediction models

Model of Virag and Hajdu is determined by following equation:

$$Z= 1.3566X1 + 1.63397X2 + 3.66384X3 + 0.03366X4 \quad (9)$$

where

X1= cash ratio; X2= cash flow / debts; X3= current assets / total assets; X4= cash flow / total assets.

Zone of discrimination: $Z < 2.61612$ indicates non-prosperous companies leading to the bankruptcy and $Z > 2.61612$ solvent / prosperous company.

4. Results and Discussion

For the purpose of the paper, we calculated the financial ratios of all selected prediction models used in the V4 countries. The calculations were done separately for each year. The final results are then compared with the results of the most widely and commonly used prediction model – Altman Z score – which we add into the comparison with V4 models because of its complexity and general use. The result of Altman´s model is considered to be the crucial and is set a base for the final comparison and recommendation.

Table 1 presents the results of the realized calculations provided as determined in the methodological part of the paper. In the same table we can see a clear verbal comparison and evaluation of individual prediction models in V4 countries and the internationally recognized and recommended Altman model considering the financial statements of the Slovak ferroalloy company.

Table 1: Resulting values and the prosperity classification of the ferroalloys manufacturer using selected prediction models

		2014		2015		2016	
		value	**class.**	**value**	**class.**	**value**	**class.**
Czech model	IN 05	1.297	NZ	1.262	NZ	1.293	NZ
	Douche balance analysis I.	1.551	P	1.238	P	1.321	P
	Douche balance analysis II.	1.126	P	1.143	P	1.093	P
Slovak models	Ch-index	-0.056	NZ	-0.061	NZ	-0.069	NZ

	G-index	0.249	NZ	-0.204	NZ	-0.241	NZ
Polish models	Model of Mączyńska	0.578	NZ	0.837	NZ	0.820	NZ
	Model of Gajdka and Stos	0.424	N	0.386	N	0.388	N
	Model of Poznanski	7.861	P	4.376	P	4.561	P
	Model of Prusak	10.351	P	4.915	P	4.010	P
	Model of Hold	6.757	P	4.544	P	4.822	P
Hungarian model	Model of Virag & Hajdu	3.416	P	4.015	P	3.339	P
American model	**Altman Z score**	**2.454**	**P**	**2.148**	**P**	**2.129**	**P**

Note: NZ- entity in neutral zone, P – prosperous entity, N – non-prosperous entity.

By applying different V4 models, we achieved different results. As we mentioned, it is largely caused by the fact that the models were formed in a different environment and are based on the information from a specific legislative, financial and economic environment. Each environment is distinguished by its unique parameters from the environment in which the companies from the Visehrad Group operate. When regarding the models of the Czech Republic IN05 and Doucha' s balance analysis, the company is ranked among the enterprises which financial health is positive, although the grey zone was determined using the IN 05 index. Despite the fact, that the company is the grey zone, according to the financial data, the company has 70% chance to create a value. The models created in Slovak conditions, models of Gurcik and Chrastinová, classify the company into the neutral zone, i.e. the company is not in optimal financial condition. The primary reason why we are in the grey zone may be the fact that both these models were created for the conditions in agricultural companies and the searched company is of an industrial nature. In 2014, according to the model of Gurčík, the company reached positive resulting value which was caused by the existence of retained earnings and after its distribution in subsequent years, the resulting values are negative approximately at a constant level. The bankruptcy of the company in the near future is improbable and it is obvious that the company can create the value added. The results of the Polish prediction models are various. The differences are caused because of the different industries and types of companies for which the original model was determined. For instance, the models of Mączyńska or Gajdki and Stos are determined for companies in the stock market, and the real prediction of the ferroalloy company is weak. The other Polish models (models of Prusak, Poznanski and Hold) are closer the field of the searched company and so the results better correspondent with the current situation of the company. The resulting value of the Hungarian prediction model was higher the limit value, thus the financial situation of the company is at the sufficient level. The results achieved by this model are almost the same, with slight increase in 2015 caused by the huge volume of liquid funds in the form of short-term financial assets and cash.

To conclude, accepting the results of the Altman model as a base, the same results were achieved also by both Slovak models, polish model of Mączyńska and by the Czech model IN05. For the objective recommendation, we exclude Slovak prediction models, which were primarily formed for the agriculture entities and we prefer the other ones. It is obvious, that the financial situation of the company is not optimal, but on the other hand, the company is not threatened by a bankruptcy. However, if the company worsens some of the key indicators under certain circumstances, it may gradually get into financial problems that could lead to bankruptcy.

5. Conclusion

Despite plenty of researches and publications dedicated to the issue of bankruptcy prediction, there are not many Slovak models, that forecast the probability of bankruptcy with

high prediction accuracy. On the other hand, there have been numerous bankruptcy prediction models developed worldwide, but the applicability of a model can vary depending on the specifics of national economies, industry and other factors.

In general, prediction models are influenced by a number of indicators. The most significant indicators, which have an important share on the resulting values, are the value of the profit, the value of the liabilities and assets, the total turnover. We cannot choose only one model as the most objective model, because the prediction of financial health cannot be predicted on the basis of just one model. Such a prediction would be very distorted and biased. Considering the conditions of the ferroalloy company, which is a manufacturing and an industrial entity, we assume that the most relevant models are IN 05 and Model of Mączyńska, considering the results of the international Altman´s model as a base. The most commonly used indicators that reliably determine the financial situation are the turnover of assets and return on revenue ratio. By analysing and comparing the V4 prediction models, we found that prediction and assessment of the company depend on a suitably chosen model, and the resulting value reflects the environment in which the company operates, as well as the solvency of its partners.. Even though the models were created for companies operating in different national conditions, we assume that financial and economic environments of Visegrad countries are very similar and the models can be undoubtedly adopted.

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EMPLOYEE PERFORMANCE ASSESSMENT SYSTEM

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Abstract. Human resource activities have become an important part of meting strategic aims of national and international economies. In particular, the developed countries, with high level of technological progress and the efficiency of production as expected, see the labour factor as the key component of competitiveness, stability and sustainability. If the corporate organizations are interested in facing global and national markets, it is necessary to pay close attention to building a competitive advantage through product innovation and services, technological changes, but also the expected trends of high-quality, talented employees, working with requirements and attitude of each employee individually. It is vitally important for the organizations not to fall behind using their capital such as equipment and expertise and to focus on the care of the employees and their personal development. It is important to do so by working together with human resource development as the performance of an employee is one of the most important elements of corporate organization's function. The paper deals with performance assessment in GRASS CZECH in a company from Český Krumlov. The aim of the paper is to analyse the current system of assessment, interpret the results and to design an efficient system of performance assessment in order to improve the current situation for the future in agreement with global trends in human resource management.

Keywords: Employee benefits, Motivation components of wages, Job satisfaction, Performance standards, Evaluation and remuneration

JEL Classification: J24, J53, M12, M14

1. Introduction

Currently, people are more educated and they require equal treatment and behaviour. It is important to respect their needs and opinions (Ismail & Gali, 2017) and listen to them and involve them in decision-making (Ceschi et al., 2017). It is also important to create the conditions for a joint partnership and engage staff for high work performance and responsibility for work well-done (Ford, 2017). In particular, developed countries of high technological progress and efficient production see the human factor as a key factor in competitiveness, stability and sustainability. Employee performance is one of the drivers for organizational functionality (Baldwin et al., 2017). If corporate organizations want to compete on both the international and national markets, they should pay close attention to building a competitive edge through product and service innovation (Dvořáková Líšková et al., 2016), technological changes, and expectations of new trends for high-quality, talented employees including individual approach to each worker. It is important to ensure that companies not only take advantage of corporate capital, such as technical equipment and expertise, but also focus on the care and development of existing staff, including personnel activities of the

human resources department. It is important to analyse the status of the processes set up together with the employees' own thinking about the functionality of the established system to assess the relation of employee performance and assessment. Based on the results it is possible to assess the motivation of employees and support meaning quality work performance within a transparent system of evaluation and fair remuneration in relation to personal growth and development. To analyses the processes, the best way is to analyse the corporate documents. To analyses the opinions of employees, questionnaire research is the best option. Through such interviews, it is possible to analyse the attitude of employees to the management of performance and employee assessment including feedback (Rajnoha et al., 2016). The weakness of the evaluation interview may be the reluctance to any self-evaluation and an open self-reflection or, on the contrary, the excessive self-esteem or inability of self-criticism. The assessment manager's ability to bring the evaluator into self-assessing conclusions is emphasised together with other career goals of professional and personal development. To assess the performance it is vitally important to rate it, such as follows: excellent performance (employee exceeds expectations. The performance is consistently excellent); well-balanced performance (the employee fulfils goals and requirements consistently, they work well); barely effective performance (the employee does not fulfil most of the goals and requirements, a significant improvement in work performance is necessary); unacceptable performance (the employee does not meet most of the goals and requirements; the effort to improve is low).

The decision of employee assessment should be based on formal assessment. Kasper and Mayrhofer, university researchers from Vienna, in their publication called Personalmanagement – Führung – Organisation report the assessment criteria that should be taken into account in the system of performance assessment. The criteria include personality traits, such as independence, loyalty, willingness, initiative, creativity, performance results related to work results e.g. number of insurance contracts concluded, number of produced pieces etc. and worker's working and social behaviour, e.g. cooperation with colleagues, customer relations, and dealing with subordinates (Kasper, 2009). If the assessment system is properly implemented, feedback can be gained on performance, needs, opinions, and employee satisfaction (Yang & Hung, 2017). It offers a possibility to discuss necessary changes, set performance and development goals and aim at the employees to motivate them for better performance (Gorman et al., 2017).

2. Methodology and Objectives

The aim of the paper is to analyse the current system of assessment, interpret the results and to design an efficient system of performance assessment in order to improve the current situation for the future in agreement with global trends in human resource management.

After a comprehensive literature review, Compilation and analysis of information and written records, a questionnaire research was applied in a sample of 345 people, including monitoring, during September and October 2016.

The questionnaire contained the personal data of respondents and the closed questions on personality and open questions related to the system of current assessment of employees according to work performance, relations with senior staff, satisfaction and motivation of good work performance and fair remuneration. There were closed questions with the Likert scale, together with semi-closed questions. Possible answers were “yes“, “no”, “rather yes”, “rather no” and "I do not know" with the possibility of an own interpretation in the answer

"other". The questionnaire was personally distributed and the aggregate evaluation was recorded in figures and tables using Microsoft Office Excel 2013. The selection of respondents was gender-based and age-balanced; employees were represented at different times in the company at higher, middle and lower management positions.

3. Results and Discussion

GRASS CZECH highly emphasizes performance management of each single worker, an operator, a plant operator, and a maintenance operator and a production supervisor and also the employees of supporting departments such as maintenance and electrical maintenance, quality control, logistics, production preparation and management. Each department requires a different performance management subsystem to participate in the complex system. Foreign trade relationships with individual members of the Grass Group are based on active regulation.

Affiliates in the Austrian towns of Höchst and Götzis and in Reinheim in Germany complete the furniture fittings from the components imported from Český Krumlov, on the basis of a work contract. A fixed amount of money is charged for each processed product, by the intensity of the product processing based on standard hours and hourly rate. As the hourly rate is fixed, it is necessary to decrease inputs of overheads and call for increased labour efficiency, such as product calculation – price for a product/semi-finished product re-exported to the affiliate that ordered redesign of a product is equal to the product of time required and the hourly rate. It means 300 CZK per a standard hour.

Figure 1: Labour input of a product

Production Aktivitäten zu Prozess 363.200.52.1615

Datei Funktion Extras Info ?

vP	IDAktv	Aktivitätenart	Aktivität	Bezeichnung	Druckgr	Ress	BRes/AltRe	ZME	ZEtr	Stückzeit	ZEte
3	7806	Produktion	4TRANS 001	Transport nach Tschechien		Arbeil	000040	H	Min	0,00	Min
10	7808	Produktion	4MONHA 028	kompletne smontovat, skontrolovat,		Arbeil	802030	H	Min	5,50	Min
19	7809	Produktion	54000625	(Tschechien)Zeitklasse Arwis-Würth-Ka		Arbeil	000002	E	Min	0,00	Min
20	7810	Produktion	4MANUE 020	Karton slozit		Arbeil	000040	H	Min	0,70	Min
30	7807	Durchlaufzeit	Transport					E	ATg	0,00	ATg
31	7811	Durchlaufzeit	Transport					E	ATg	0,00	ATg
35	32749	Fremdleistung	AKT_FA_CZ					E	Min	0,00	Min

(c) 2012 proALPHA Software AG Grass GmbH & Co. KG [10]

Source: Grass Czech s.r.o., 2016.

As figure 1 reveals, assembly of product 363.200.52.1615 consists of two operations (position 10 – completion with the labour input of 5.5 minutes/100 pieces and position 20 – package the labour input of 0.70 minutes/100 pieces). The total labour input is equal to the sum of both positions. It is 6.20 minutes/100 pieces. Price of the product is calculated as the labour input/60 multiplied by the hourly rate. To calculate the price, the formula is used in the following way: 6.20/60 x 300 = 31 CZK/100 pieces (the price covers unit costs and overheads). It is essential that the product calculations and hourly rates included a contribution to fixed costs and sales. The set price and time requirement of a product are embedded into the strategic planning of GRASS CZECH top management in comparison with Grass Group's top management.

For production operators, the performance management system is defined in terms of payload according to the number of minutes required per 100 pieces of product/semi-finished product (performance standards determine how many parts are to be produced per unit of time, e.g. shifts). The production operator is stimulated to deliver the highest possible performance to meet performance standards to 100 % or more. If the performance standards are not met, the basic hourly rate is set at CZK 65 per hour

Wage calculation model per shift

Calculation per standard pieces = number of hours per shift/labour input/100 pieces.
Performance in % = number of finished products/standard products x 100 pieces.
Hourly wage in CZK = hourly wage x performance in % /100 pieces
Wage per shift = hourly wage x 7.5 hours.

The model is applied in performance wage system. Different wages for different performance is seen in Table 1.

Table 1: Wage based on performance standards

Labour input/100 pc	5.5 min.
Perfor. standard 7.5 hrs.	8182 pc
Hourly rate (Btto)	80 CZK

Products finished	8000	8200	8600	9000	9400
Performance in %	97.78	100.22	105.11	110.00	114.89
Wage per shift in CZK	586.67	601.33	630.67	660.00	689.33

Source: Author

Wage does not depend on meeting performance standard only. The demand of using automatic and semi-automatic assembly machines, simple tools and devices is also taken into account. The workplace is divided into three groups with different hourly wage –see Table 2.

Table 2: Hourly wage for different machines

Group 1	Hands, simple tools and devices	75,- CZK/hour.
Group 2	Simple assembly machines	80,- CZK/hour.
Group a 3	Automatic and semi-automatic assembly machines	85,- CZK/hour

Source: Grass Czech (2016).

Table 2 shows that the production operators are motivated to upgrade their skills to be able to deliver the required work performance even on complex semi-automated and automated machines with a higher earning potential.

Employee training uses a training method of training, i.e. the employee is assigned a more experienced colleague (mentor) who helps them.

The following employee group consists of workers who do not work in a wage based on an hourly wage, e.g. a maintenance operator, a plant operator, a service operator, a warehouse keeper and a quality management worker. Hourly wage is reassessed on the basis of personal development and employee growth through evaluation interviews once a year including valorisation. The monthly remuneration for employees in the logistics, manufacturing and administration departments consists of a defined amount of monthly wages that only partially motivates workers to higher work performance due to a fixed amount of money. The task of senior staff is to create the workload of employees and innovate it with the support of their professional growth and development.

The managers, such as production supervisors and managers, logistics managers, maintenance managers, heads of Quality Management, chief financial officers and administrators, the bulk of the monthly wage is made up of fixed wage components outside the annual performance premium that is dependent on performance (40 % bonus) and the achievement of the targets for each department - branches (60 % bonus). It is significant motivation in terms of supporting favourable conditions in order to increase the work performance of managers and their subordinates.

By to the Czech Labour Code, employees are entitled to get a 100 % wage bonus if they work on a national holiday, a special bonus of 10 % on Saturday and Sunday, an overtime bonus of 25 % of the average earnings, and a bonus of 10 % of average earnings if they work at night (Česko, 2011).

For workers of piecework labour, the wage structure consists of a basic hourly wage rate for 3 groups of workplaces with a monthly premium of CZK 10/hour in case of a monthly performance of more than 100 %; multi-shift traffic benefits beyond the law, in case of more than 100 % performance and regular shifts, together with other statutory bonuses, such as overtime, holidays, Saturdays and Sundays.

GRASS CZECH favours work in multi-shift operation in a regular two-shift regime by CZK 10/hour or in a three-shift mode by 10, - CZK/hour + 8 % of average earnings. The workers of hourly wage, such as a maintenance operator, a plant operator, a service operator, a warehouse keeper and a quality management worker, get the basic hourly wage with a pay slip, a variable hourly bonus, a monthly bonus (bonus - not included in the salary, paid on the basis of a point rating of the direct superior), working in regular two-shift mode (10 CZK/10, - CZK/hour + 3, - CZK/hour.) together with other statutory supplements (overtime, holidays, Saturdays and Sundays). Regarding the technicians, the wage structure is determined by a contractual hourly/monthly wage taken into account for the amount of overtime hours (150 hours) according to the salary slip, and monthly bonuses (bonus - not included in the salary, paid on the basis of a point rating of the direct superior) together with other statutory supplements (overtime, holidays, Saturdays and Sundays). All employees are entitled to get a motivation bonus, paid twice a year. It is a variable bonus, paid in case of good profit of the company. The bonus is calculated as follows: 157.5 hours x average hourly wage/2. The bonus is paid to the employees who have worked for the company for more than six months, not during the notice period.

Regarding the workers of piecework labour; their bonus is related to meeting the requirement of standard performance. In the absence of more than 3 days, the bonus is reduced in relation to absence at the workplace from day 4 (25 % reduction), absence of 5 days (50 % reduction), absence of 6 days (75 % reduction) and absence of 7 days or more (the bonus is reduced by 100 %, entitlement to the bonus is extinguished). The absence not taken into account when reducing the bonus include annual leave, training, marriage or funeral, donating blood or other biological materials as legally permitted (Vnoučková, Urbancová and Smolová, 2015). Variable component of the wage also include loyalty bonus paid after 10, 15 and 20 years of work for the company. The bonus is 1,000 CZK per each year. It is paid in the month of the anniversary.

Financial and non-financial benefits are also an important part of remuneration and motivation (Singh, Jamil, Baroto, Boyi et al., 2017). The most common benefits include more days of paid-leave (From 20 as granted by § 102 of the Labour Code to 25); more days of paid-leave for mothers of children aged up to 12 years (0.5 day more in every calendar month;

on condition that the whole month is worked without absence and it should be taken in that month as such additional leave is not transferable into the following period); transport allowance for workers who commute more than 15 kilometres from the company's legal address (such allowance of 1,000 CZK per month is paid every month. It is calculated by the cost of public transport); meal allowance of 55 % for canteen meals in the company. Other benefits include social and sports events organized by the company for its employees and family members, such as Lipno Dragon Boat Race, charity cycling race Bohemian Gran Fondo, Christmas party, bowling and football cup, boat trip on the Vltava River, cycling and walking trips and other events.

The Grass Group evaluation interview is conducted regularly once a year with all employees. The Grass Group took over this interval, following the Würth group owner's co-founder, Professor Reinhold Würth, who, in the Thoughts on Company Management, emphasized maintaining the necessary contact of the management and the employees. The author reports that it is appropriate to keep regular meetings with the middle management of 40 minutes in the 12 to 18 months period and to discuss them about the topics of work satisfaction, the climate at the workplace, working with superiors and similar issues. The GRASS CZECH evaluation interview takes place as in the Grass Group and the Würth Group, at regular intervals. This is the formal part of the staff assessment that forms the basis for a managed interview (Koraus, Kascakova, Parova and Veselovska, 2017). In terms of work performance management, the Würth and Grass group uses an employee survey that is regularly announced every second year. Last time, such survey was done in 2014 and 2016. The survey was anonymous, employee participation was voluntary. Less than 90 questions were divided into fourteen headings, including questions about the suitability of working conditions, working with colleagues and direct superiors, forms of remuneration, and belonging to corporate culture. The survey was analysed by the Institute for Economic and Organizational Psychological Development in Mannheim, Germany. The results provided feedback to managers at all levels of management, on the basis of which an action plan was presented aiming at eliminating or completely eliminating obstacles or shortcomings in the individual branches of the group. The survey conducted in the Würth group was an incentive for an annual evaluation interview.

Through a questionnaire survey, 30 employees were asked for filling it in, none of them refused to participate. Most of them were interested in an anonymous expression of their own opinion.

The aim of the paper was to design efficient evaluating the employees according to the work performance. To do so, it was necessary to make the hypotheses: What is the status of the employee evaluation system? What role does work performance play?

The strong motivation of employees in terms of higher work performance is based on almost 90 % of positive responses, which take into account this positive result, including positive feedback (80 %).

A good assessment of working conditions from over 90 % of respondents points to high-quality work. It can be assumed that the basic and higher needs of the employees as described by (Lorinc, Schmidt and Javorcik, 2016) are satisfactory enough and workers can perform well. Employees have a sense of belonging to the team, direct contact with co-workers and outside the work environment, they can participate in social and sports activities.

More than 90 % of employees see the system of volunteer education as favourable, they do not feel pressure from the superior, they are given time to consider the possibility of self-

realization. When questioning what education specification they would like, half of the respondents spoke out about product training. Another group of 9 employees, i.e. 30 % of the participants, showed an interest in language education in the form of courses. One must not forget the fact that all respondents working in the position of the production operator consistently expressed an interest in deepening the knowledge about the use of the products they manipulate with at the workplace.

4. Conclusion

The current system of evaluation of GRASS CZECH employees is very good. It allows analysing the performance of workers to all the levels of management. The author of the paper suggests a better connection of human resource department with the production processes, highlighting the professional growth and development of employees. Although the process of post-graduate development and employee training is well-developed at the Grass Group level, it is not sufficiently used by management and qualified staff at the branch of the manufacturing company due to low interest. It is difficult to get employees into further training by the needs of a manufacturing company for qualified workforce, due to a voluntary basis. The author of the paper recommends the creation of criteria designed for those interested in long-term growth and professional development in line with the motivational bonus for improving qualifications set in the Appendix of the employment contract. For employees who do not want to spend their time by further development, the author of the paper proposes to draw up an overview of the required skills and abilities that need to be learned because of the demand for high quality performance of the employees concerned, in line with global trends in HR, promoting good reputation, social responsibility and the prestige of the employer.

The rating and rewarding system of manufacturing operators is dependent on performance standards, which are the main criterion for financial evaluation of employees. The questionnaire survey revealed the need for product training in comparison with foreign colleagues from a parent manufacturing company who are experienced in such implementation. The purpose of the training is to support the transfer of information from the employee to the customer, a deeper understanding of the products offered, the motivation for higher performance and employee satisfaction.

The proposed suggestions were discussed with the management of the parent company in order to highlight changes in approach and employee responsibility for performance, which is a priority criterion for the system of evaluation and remuneration of the employees.

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THE IMPACT OF GLOBALIZATION ON THE SPORT INDUSTRY AND THE MANAGEMENT OF SPORTS ORAGNIZATIONS

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Abstract. Over the last years, the European sports sector has seen many changes that have affected the areas of management, economics, employment and technological progress. According to recent scientific studies, the key factors in the development of the European sports sector include the rise in sports activities, globalization, new technologies and the aging of the population. The importance of sport has also increased since European governments have begun to invest more in this sector for its positive role. These reasons change the character of the perception of sport as a new scientific discipline and hence of the industry that has its considerable economic power. At the same time, it is necessary to look at this industry from the managerial point of view, considering the specificities that are typical for the management of organizations operating in sport. The aim of this paper is to point out the new trends in management in sports industry in Slovakia and in the world under the influence of globalization. During the creation of this article was analysed many of foreign scientific literature and expert articles dealing with issues of management and economic in sport, as well as issues that are closely related to the area under consideration. In addition, were used surveys and interviews with representatives of sports in Slovakia.

Keywords: sport industry, globalization, sport management, organization, trend

JEL Classification: Z20, Z21, M10

1. Introduction

Sport has been an important part of the Greek or Roman Empire for important social activities. Sports has undergone significant development and change in its impact, organization, or formalization.

Stewart et al. (2004) developed a typology of sport, pointing to the relationship of sport as both activity and product.

Nicholson (2007) made on this basis a study on the media interest of individual types of sport. Spontaneous sport involves casual sporting activities, which are very gradually formalized into recreational sports. Recreational sports include, among other things, extreme sports activities. Fitness sport is typical formalizing exercises in different circles, aerobics. These three types of sport are minor in terms of media interest (Nicholson, 2007). On the other hand, competitive sports, which mainly involve amateur competitions and university leagues, enjoy greater media interest, particularly in the US and Western Europe. Elite sport, which includes professional leagues and top international events, is, of course, the focus of media attention around the world.

2. Methodology

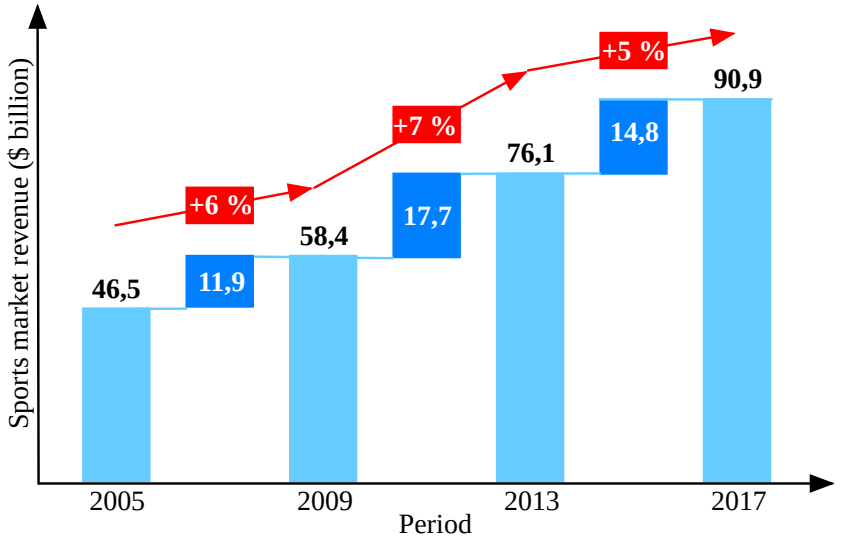
The aim of this paper is to point out the new trends in management in sports industry in Slovakia and in the world under the influence of globalization. During the creation of this paper were used methods of collecting information, methods of processing information, methods to solve the problem, and methods of evaluating the solution. It was analysed many of scientific literature dealing with issues of management and economic in sport, as well as issues that are closely related to the area under consideration. In addition, were used surveys and interviews with representatives of sports in Slovakia, officials, sports managers, organizers, journalists or athletes, to create a comprehensive view of the issues. The main results are summarized in this article.

3. Sport Industry

According to a new study by Sultan and Collignon (2014) from AT Kearney, the sport industry is expanding around the world at a rate higher than GDP growth. The sports events market - including ticket, broadcasting and sponsorship revenues - opens huge opportunities for players in the industry, assuming a correct understanding of key factors and business model management. Pitts and Stotlar (1996) report that the sport industry is the market where products offered to customers are sports, fitness, recreation or exercise, and can be activities, products, people, places or thoughts. According to Caslav (2009), the products with which sport is available are very much and contribute to their gross domestic product creation and, as stated, the US sports industry is the sector of the national economy in this respect.

Revenues in the sports market are steadily increasing (Figure 1), with the assumption that this rate is likely to continue in the future**.**

Figure 1: Revenues in the sports market and their expected increase in the future



Source: Sultan a Collignon, 2014

As far as individual sports are concerned, the leader in this market is football, which has increased its revenue from 2009 ($ 25.1 billion) to $ 35.3 billion in 2013. Among the world's most important sports-related sports, except football in particular American sports (American Football, Basketball, Hockey, Basketball, Automobile Race and University Sports), Formula 1, Tennis and Golf (Table 1).

Table 1: Year-on-year performance in the sports market for selected sports

	2005 - 2009	**2009 - 2013**	**2013 - 2017**
Football	8 %	9 %	5 %
U.S. sports	5 %	5 %	4 %
Formula 1	3 %	4 %	4 %
Tennis	2 %	5 %	3 %
Golf	3 %	2 %	4 %
Others	11 %	9 %	9 %
Total	**6 %**	**7 %**	**5 %**

Source: Sultan a Collignon, 2014

In most countries, the sports market is growing faster than GDP, and in some countries typical of its large sports market, this growth is very high. These are mainly Great Britain, France, Brazil, USA and China. For comparison, the earnings in sport for 2013 were $ 27.1 billion in Europe, the Middle East, and Africa, and $ 26 billion in the US.

4. Sport Management and Globalization

Over the last years, the European sports sector has seen many changes that have affected the area of management, employment and technological progress. According to the Study of Sports Sector (2008), key factors in the development of the European sports sector include increased sporting activities, globalization, new technologies and the aging of the population. The importance of sport has also increased since European governments have begun to invest more in this sector for its positive role. According to the authors, between 1998 and 2008, employment in the sports sector increased by almost 60% as a result of the more active participation of the population in sporting activities.

As early as 1996, Slack emphasized the importance of linking issues and the theory of modern management to the management of sport. Not only to strengthen the trustworthiness of management in sport, but also to use sport as a test ground for wider development of management theory. Consequently, Slack (1998) proved that sport management was distinguished from general management based on the social value of sport that is more important than its economic value.

Smith and Stewart (2011) have defined four unique characteristics of sport, but basically it was just a generalization, respectively. merging the original 10 properties into the individual groups originally defined in 1999:

1. Sport is a heterogeneous and volatile experience in the irrational passions of fans, driven by a high level of product and brand loyalty, optimism, and place of identification.
2. Sports prefers winning before financial gain.
3. Sport is a subject of varying quality, which has an impact on the management of competitive equilibrium and anti-competitive behaviour.
4. Sports must have a regulated fixed resource schedule.

In most literature on European sport, with a few exceptions, the notion that sports teams do not make a profit is emphasized (Sloane, 1971; Cairns et al., 1985). As stated by Fort (2000), it can be said that the maximization of benefit from the winning percentage of victories prevails as the main goal of the European team owners.

Kesenne & Jeanrenaud (1999) have stated that the biggest difference between Europe and America is that American clubs have the character of profit-making enterprises, while on the other hand, the only goal of European clubs is to be successful in their field. As Primault and Rouger (1993) point out that, in addition to horizontal competition, there is no vertical competition between the individual levels, so it is not surprising that American clubs tend to generate profits rather than maximize winnings.

Based on previous arguments by various authors, the fundamental differences between the European and North American models can be summarized in the following table 2.

Table 2: Year-on-year performance in the sports market for selected sports

	European model	**North American model**
The main goal of clubs	Success	Financial gain
Leagues - international overlap	Yes	Not
Leagues - move up / down	Yes	Not
Competition funding	Cascade system	Each league has its own resources
Sources of funding	Even with state support (public resources)	Without state support, but better commercialization
Competition	Horizontal as well as vertical	Horizontal

Bourg (2014) is of the opinion that although very similar concepts are used across both the "European model" and the "North American model" model, there are still many different country-specific operational methods.

On the basis of the findings, it can be said that there is a certain penetration of American and European culture in Slovakia today. Sports organizations in Slovakia differ to a great extent in their mission statement or in setting primary objectives. These goals can be divided into three groups:

1. Profitability - commercial purposes,
2. Achieving sporting success - performance sports,
3. Achieving a reasonable profit, but also success - commercial purposes and performance sports.

In view of the objectives, sports organizations must choose a relevant strategy and set priorities in stakeholder management. Here you can often experience a profit vs. success.

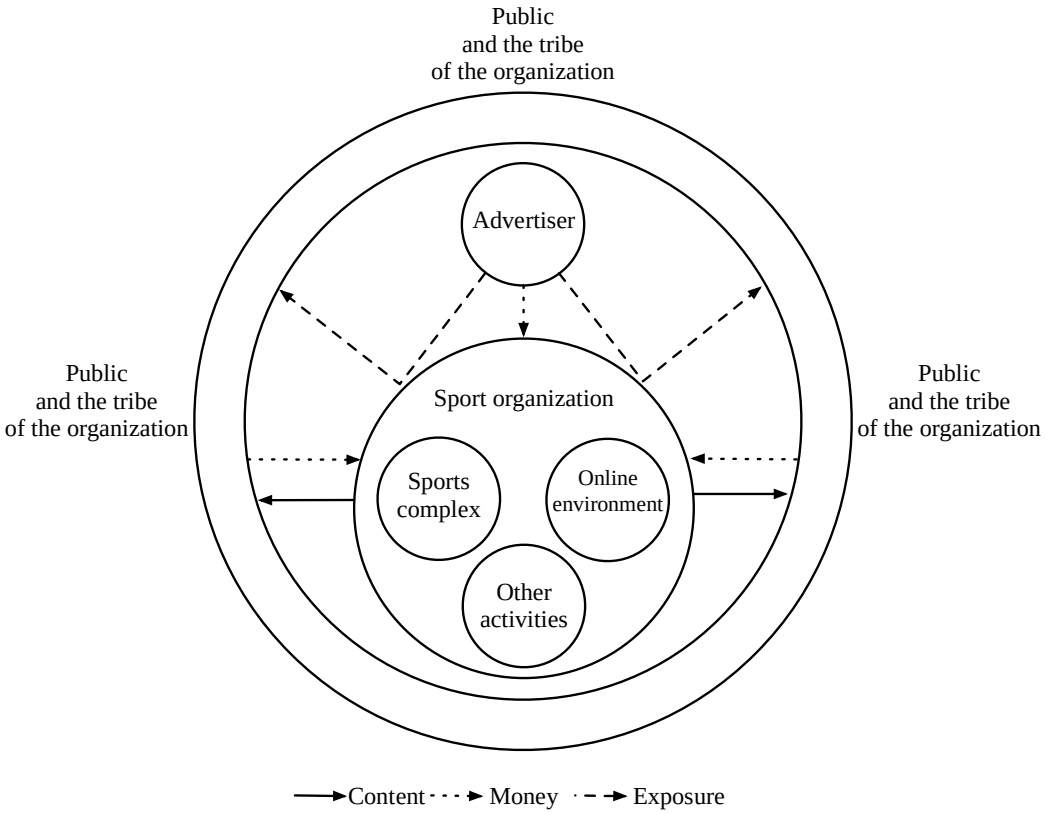
However, it must be stressed that this relationship can function as Nicholson (2007) puts it in only in the absolute professional environment of sport, that is, in the case of top events or leagues.

Under the conditions of Slovakia and the vast majority of sports organizations, this relationship is easier (Figure 2). Basically, an advertiser pays directly to a sports organization and it tries to communicate the content of the message in its own direction, whether directly on the premises of the organization, on its website and social networks or in its other marketing activities or in cooperation with local media.

Marketing communication is closely related to the presentation of the offered services, products, results, but also important athletes, coaches, or other important persons associated with the organization. All of this has an impact on the general public, helping to strengthen the tribe or the interest of schools in establishing cooperation with the sports organization. Godin (2010), in his book Modern Tribes, states that marketing has changed everything.

Marketing has made an impact. Marketing definitely changed the status quo. And, above all, marketing has liberated and activated the tribe. Marketing is an act of telling stories about what we do - stories that sell stories that are spreading. Marketing chooses presidents, and marketing collects money on charity. He also takes the view that marketing was once an advertisement and advertising is expensive. Nowadays marketing is about contacting the tribe and providing products and services with narrative stories.

Figure 2: Relationship between sport and media in the conditions of most sports organizations in Slovakia



Source: Modified by Nicholson, 2007

A very interesting look at marketing also has Gladwell (2013), which applies three basic rules: the Law of Several, the Sticky Factor, and the Strength of Context. The law of some understands the power of exceptional people who, through social contacts, energy and enthusiasm, as well as the power of personality, can disseminate awareness of the product or organization extremely quickly. The tackiness factor assumes that there are specific ways to make the infectious message memorable, and the silhouette of the context says that human beings are much more sensitive to the surrounding environment than it would seem. Taking into account this Gladwell theory, there is no doubt that this is certainly the case in sport. Sport needs heroes with a story that can pull the masses of people. These heroes can also be on a local level, but a story that can be a good driving force when building a strain is important. According to L'Etanga (2006), sports celebrities belong to the commercialization of sport, and as sports heroes are required to apply media interest and sponsors' money, and as a result, according to Gilchrist (2005), sports heroes offer themselves as "cultural industry" products presented as sports stars. A modern sports star is both a cultural product (the brand that is being sold) as well as a process (part of the advertising and branding chain or product approver that supports the capital accumulation scheme).

5. Discussions

As is clear from the previous text, sports organizations are in a relatively complex and dynamic environment. The recent change in society also affected the traditional sport community, which was dependent on volunteers who run sports clubs and staff. As mentioned by various authors (Cuskelly et al., 2006; Kikulis et al., 1995; Slack, 1991), the professionalization of the organizational dimension of amateur sports organizations in recent years has significantly changed the role of volunteers. Sports organizations have moved to a level of more professional or commercial, and so they are approaching the management of people (Chelladurai, 1999). Gradually, organizations went into more complex management situations, as well as financial constraints in pursuit of their strategic goals (Sharpe, 2003; Auld, 1997).

This also has a significant impact on the relatively significant difference between European and American sport management issues, which are cited by several authors (Sloane, 1971; Cairns et al., 1985; Kesenne & Jeanrenaud, 1999; Primault & Rouger, 1993; Bourg, 2014). As a major difference, the authors point out the essence of the functioning of sports organizations and thus the creation of profits versus sports achievements. On the other hand, the aforementioned social changes also significantly affect sports organizations in Slovakia. Already in Slovakia it is possible to feel these two cultures and to transfer the American model and structures of sports organizations to European conditions. For example, it is about offering a sports facility and services as a product, especially within multifunctional sports facilities that offer their spaces for different businesses or other sports subjects.

6. Conclusion

Management ranks among relatively young disciplines, but has nevertheless gone through quite a lot of development and new approaches and understanding. Gradually, various areas of application have evolved and need to be addressed from the point of view of science. Management in sport as a science and research sphere forms only a few decades. The reason for the increased tendency to engage in sports management is also the growth of the sports industry, the amount of finance in sports, the number of parties involved, globalization or the complexity of the sporting environment.

Authors of various scientific publications in the area of management in sport agree on the need to take into account the specific characteristics of sport in the application of management approaches. Then there are other important factors such as environment, culture, or values.

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INFLUENCE OF GLOBALISATION AND LOCALISATION IN THE FIELD OF LIFELONG LEARNING

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Abstract. The notion of globalisation penetrates into the social awareness of economy. According to a number of experts, it is an expression of a certain crisis of a social order which was to serve all its members. The current concept of globalisation, which was originally supposed to serve only the interests of large corporations, finds itself in the crisis. The cause is obvious. It is the surplus of profit over the interests of employees and customers, over public and social interests. The aim of our time should then be a new interpretation of the notion of education that would equip us with the ability to support human development with regard to sustainable development. We perceive education as a constant process of increasing learning, improving human skills and as a means of personal development and building relationships between individuals, groups, and peoples. The paper addresses lifelong learning, which is of great importance nowadays. The lifelong learning has contributed to the creation of new jobs and the emergence of many institutions. The pressure of companies on employees' skills is on the rise all over the world with a new name arising: a learning society. The aim of the paper is to analyse the lifelong learning of employees in the public sector and to assess the importance of lifelong learning in the non-profit sector. The secondary objective of the paper is to identify the interest of public sector employees in the lifelong learning. Another partial objective is to identify the interest of non-profit sector workers in further education. The survey was carried out using quantitative and qualitative research.

Keywords: Globalisation, lifelong learning, localisation, non-profit sector, public sector.

JEL Classification: F60, F61, Z13

1. Introduction

Lifelong learning today is a very important part of our everyday life at work as well as in our daily lives. Nowadays development is moving fast ahead and even a long-time employee has to train constantly, acquire new knowledge and get acquainted with the latest developments in the industry. Companies are interested in workers who have knowledge and are interested in its deepening. Changes also concern state institutions where requirements on employees are constantly increasing.

Lifelong learning does not represent the prolongation of school education; it is a requirement for lifelong expanding one's learning. For decades worldwide, there has been the talk of permanent education, motivation for learning and even the economic aspect in order

for the education to be available to the widest range of individuals. Education will help us get better employment. The problem is seen in later retirement because the age limit is constantly increasing. This will lead to further education for the elderly to keep up with the younger generation. Companies' pressure on increasing qualification is growing all over the world and a new name is beginning to appear, a learning society. This phenomenon deals with various documents at international level, such as the European Union, UNESCO and others (Průcha et al., 2013). According to Hroník (2007), education is one way of organized and institutionalized learning.

2. Theoretical background

Further education is mainly related to employment, where it is necessary to acquire new skills and knowledge. The unemployed can take advantage of retraining courses that will make them available to the labour market. Further education may include remote or extension study where services are mostly covered. In developed countries there is an increasing tendency to attend educational institutions (Průcha et al., 2013). Learning is a process. Education is a finished product of the educational process. Education will allow for better employment in the labour market, where it is an important factor.

The concept of lifelong learning presupposes learning as an indispensable activity of an individual. This concept presents the possibilities to extend one's outlook, improve knowledge and skills, and improve one's preparedness for changes in working life (Skalka et al., 1989). Learning is random and deliberate gathering of information, experience, and ability. It is possible to distinguish between open, non-goal-oriented learning and result-oriented learning where a particular goal exists. This allows us to get a new look at the world (Napper & Newton, 2010). Adult education is an important economic factor that has helped to increase employment and competitiveness (Veteška et al., 2011). Lifelong learning takes place through different levels of education, which are nowadays referred to as formal, non-formal and informal. At these levels, different components of education focus on the integration of human social functions (Kalenda, 2015).

The national system of qualifications does not replace the existing education system, but it is a tool for linking with the needs of the labour market. Using this system, the results of further education can be evaluated and analysed. Pursuant to Act No. 179/2006 Coll., on recognition of the results of further education, this is done by the National Institute for Education, Educational Counselling Facilities and Facilities for Continuing Education of Teachers (Valenta, 2014). The adoption of the National Qualifications Framework (NQF) by several governments in all regions of the world has shown some success in formal learning Owusu-Agyeman, 2017).

The European Qualifications Framework combines qualifications systems to make them clearer and more comprehensible in other European countries. The aim is to promote the mobility of individuals between countries and facilitate their lifelong learning (Průcha & Veteška, 2014). It represents important information if one wants to apply to the foreign market. It contains data on the highest education so that foreign employers can get an idea of what the candidate's skills are. This level can be increased through courses and internships, which must be nationally applicable. It has eight stages ranging from basic education to doctoral education which represents the highest stage of education. At the beginning of 1993, the European Union (EU) did not regard education as one of the pillars of its regional cohesion and identity. Over time, the recognition of the potential role of education at the

individual and social levels has increased. However, this interest in education is much more focused on acquiring knowledge and skills to develop competitive workforce rather than facilitating the integration of all citizens into the European community - a bias that is reflected in EU policies and recommendations (Stromquist & da Costa, 2017). The impact of the European Qualifications Framework as a key European tool for lifelong learning is a contribution to improving employability, comparability and mobility in the European learning area - the creation of national qualifications frameworks in Europe (Mikulec, 2017). On the other hand, East Asia presents new discoveries in lifelong learning that are in contrast to European experiences. It considers education as a social system that functionally differs and expands (Han, 2017). Edutourism, seen as an informal form of lifelong learning led by individuals, also played an important role, increasing the value of cities in the broader sense (Costa et al., 2017).

Lifelong learning is a term that represents all activities that make us acquire our skills, knowledge, competencies, usable in a personal, social and professional sphere. (Kopecký, 2013). Lifelong learning leads to an individual's development in the area of economic, cultural and social capital, increases individual's strength and competitiveness, which could be one of the key factors that motivate and have a positive impact on personal and professional life. (Billett, 2010). Interdisciplinary nature of studies in the field of lifelong learning is often based on knowledge from separate disciplines such as sociology or psychology. Examples include understanding of the mutual disciplinary background, the need to combine different perspectives on sociology, psychology, education providers, and policy decisions by governments in multilevel models and the desire to adopt both quantitative and qualitative research methods (Boeren, 2017).

Due to the shortage of skilled workers, the Czech Republic may be in a serious trouble. It shows the interconnection of further and vocational education with the economy. This could lead to investors leaving the country for lack of qualified workers. This has a major impact on the competitiveness of our state. Companies that use the National Qualification System are valued.

The importance of knowledge and skills is constantly increasing in the labour market. This knowledge is important for engaging in civil society, adapting to new situations, it is essential for proper decision making. With societal growth, one's price increases in the labour market as well as the need to maintain quality and standards of education with a higher percentage of population. As a negative example serves the involvement of low-skilled social groups who see lifelong learning as a benefit but refuse to participate (Tureckiová, ed., 2008). The aging population and rapid economic change make it increasingly important to update the skills level of the population over the lifetime. Adult learning is expected to enable adults to adapt continuously to ever-changing economic requirements (Saar, E., Räis, M.L., 2017).

Civil society often manifests itself through the activities of non-governmental non-profit organizations that point to and solve problematic areas in society. Problems are seen in legislation, lack of funding experience and effective leadership. The issue of funding is still present as in the experiment the organizations provided donors with information on the amount of revenue, but the willingness of donors did not increase or even match the size of the organization. Provided information on organization operation is not important to donors (Borgloh, 2013). The lifelong learning of these organizations is important. For example, the aim of the course was to design a web structure and web-based interface based on pedagogy (Khlaisang, 2017).

3. Aim and Methodology

The aim of the paper is to analyze the lifelong learning of employees in the public sector and to assess the importance of lifelong learning in the non-profit sector. The secondary objective is to identify the interest of the public sector employees in lifelong learning. Another partial objective is to identify the interest of non-profit sector workers in further education. The investigation was carried out by a quantitative and qualitative survey. The field investigation was based on the theoretical basis and the following research questions were identified: In the non-profit sector there is a greater interest in courses on public relations, marketing and fundraising than in the government sector. The government sector is more interested in management and managerial skills than the non-profit sector. In the non-profit sector interest in studies is a greater motivation for further education. In the state sector, the main reason for interest in education is an increase in qualifications.

A standardized questionnaire, the most common data collection tool, was used to elicit all the necessary data. Due to technological advances and the possibility to send an online questionnaire, an electronic questionnaire was used. The filling of the questionnaire is completely anonymous and voluntary. The advantage is the saving of material for printed questionnaires, the disadvantage is seen in the limitation of the questionnaire being filled in mostly by participants who actively work with the computer and have access to the Internet. Questions have led to data being obtained that can help to refuse or confirm established hypotheses. The questions are focused on mapping the state of education in the state sector and the non-governmental non-profit sector, and on the interest of the respondents in lifelong learning.

The questionnaire was sent to 300 addresses of three municipal offices. A total of 121 questionnaires returned. The returns accounted for 40.33%. For non-profit organizations, questionnaires were sent to 250 addresses of ten organizations. 114 questionnaires returned. The returns accounted for 45.6%. The questions concerned the importance and the volunteering of further education. In addition, if reimbursements are paid by education, what type of education they favour and whether respondents are satisfied with the offer of further education. The other three questions focused on what topics employees would be interested in and what is the reason behind their interest in or indifference to lifelong learning.

The semi-structured interview with the representative of the selected subject was used for the qualitative method. Four organizations were selected for this survey. Two from the state sector - municipal authorities - and two from the non-profit sector. The aim is to compare these organizations. A set of questions was set beforehand which were crucial to the interview and had to be heard, but any digression of the interviewees from the pre-given questions was welcomed. The questions focused on the views on lifelong learning, whether the system is satisfactory, topics of interest, financial security, and what could be improved if possible. Questions are immediately evaluated. Questions: Do you regularly organize training courses? Is there a training plan for each employee? What is the interest in continuing education, do employees participate voluntarily or are they rather forced to participate? Are you satisfied with the offer of seminars, courses and educational programs? What are the topics of interest among employees? What do you think are the most common reasons for interest and lack of interest in lifelong learning for your employees? Does the training of employees in some way limit organizational performance? Do you pay or contribute to your employees for training, courses or educational programs? How much money is spent on education?

4. Results and discussion

Data collection took place between September and October 2016. The data were analyzed, subjected to statistical calculations and synthesized. The synthesis was conducted according to the principles of sociological research. Based on the results of the data processing, conclusions were made and the determined hypotheses were either confirmed or refused. 1H0: In the non-profit sector, the relationship between gender and the interest in continuing education is not dependent on one another. Data to evaluate the hypothesis was obtained from questionnaires. After a statistical calculation we can say that at the significance level of 5%, the zero hypothesis (H0) on the independence of individual characters is not rejected. 2H0: In the government sector, the relationship between gender and the interest in continuing education are not dependent on one another. 3 H0: In the non-profit sector, the selection of the topic of further education depends on the respondent's education. At the significance level of a 5%, the zero hypothesis (H0) on the independence of individual characters is not rejected. 4 H0: In the state sector, the age of employees does not affect the choice of type of seminar that was obtained from the questionnaire survey. At the significance level of 5%, the zero hypothesis (H0) on the dependence of individual characters is rejected.

Table 1: Overview of qualitative survey results - comparison

EVALUATION OF QUESTIONS	THE STATE SECTOR	THE NON-PROFIT SECTOR
Regularity of further education	regularly	social services - regularly, recreation, environment - not organized
Plan of educational activities	yes	no
Interest in further education	yes	partially, the problem of financing
Satisfaction with the offer of education	yes	in social services yes, recreation, environment no
Interest in topics	management, communication skills, computer training, IT	psychology, communication skills, IT, fundraising, marketing, PR
Reasons for interest in continuing education	raising skills, work progress, maintaining work	interest in new knowledge
Reasons for no interest in further education	lack of motivation, financial and time demands	financial difficulty
Restrictions on organizational performance	no	partially
Financial security	sufficient	insufficient
Financial security for 2017	Lovosice Municipal Office - CZK 550000,- Litoměřice Municipal Office - CZK 880000,-	not specified

Source: Author' own processing

The survey has shown that respondents from the non-profit sector prefer day-to-day courses both at the workplace and outside the workplace. This may be due to the lack of a suitable system; in some organizations employees have to be educated in their own free time and funding is problematic, or employees attend 8-hour-long accredited courses that are more affordable. In the public sector, the respondents most often replied that they wanted a seminar or course at their workplace and the length did not matter. The results show that the employer could facilitate the training of the employees by the fact that further training could take place for the most part in the offices or by providing the educational institution closest to the workplace.

The evaluation of the set out objectives, which focused on the interest in lifelong education of employees in the state and non-profit sector, has shown that the main reason for the interest

in continuing education is different for the sectors. While in the non-profit sector the main motivation was the interest in studies followed by the increase in qualifications, the increase in salary and the recognition of the environment was marked less significantly. This shows the essence of work for non-profit organizations. In the public sector, the main reason for further education was to increase the qualification which was followed by the improvement of positions. The third place belonged to the interest in studies.

In the non-profit sector there is a greater interest in courses on public relations, marketing and fundraising than in the public sector. The results confirm the hypothesis. While the employees in the non-profit sector are quite interested in these topics (20.18%), the public sector employees are interested much less (2.48%).

The results show that workers are primarily interested in topics related to the performance of their profession. As the questionnaire survey did not identify the position of the respondents, it could influence the results of interest on topics of further education. The question is the interest of workers in senior and subordinate positions.

5. Conclusion

Nowadays, lifelong learning is very important as there is constant, rapid development and progress and it is necessary to keep pace. Employees' education is being pushed by increasing pressure from both employers and society. The importance of lifelong learning is recognized not only by the professional society but also by the institutions of the European Union. The scope of education is determined by the applicable laws that both employers and employees must observe. Regulations thus may seem too strict. There is a great linkage between lifelong learning and economic prosperity, so it is important to create a modern and quality lifelong learning system. Deepening and enhancing qualifications will help with employment in the labour market and an increase in social status. The data obtained lead to the conclusion that in both the state and the non-profit sectors lifelong learning is an important factor affecting employees as well as employers. Recommending an effective way of education for the non-profit sector and the state sector cannot be embraced in a comprehensive way because each sector has its own specifics.

In the public sector, the entire education system, which is clearly managed within office, is positively evaluated. The results of the questionnaire survey show that public sector employees prefer educational activities that are conducted at their place of work. This is not always possible, but the employer could provide education as close as possible to the workplace, for instance through providing a training agency located in the vicinity of the workplace.

In the non-profit sector, there is a certain degree of fragmentation and freedom in the system of further training of workers. Even if a coherent, centrally managed concept was created, funding would still present the same problem. Non-profit organizations can only be recommended to focus on public relations, marketing and fundraising training to gain more funding that could be used in the field of continuing education for their employees.

There are differences in both sectors. From a general point of view, it would be advisable to create a comprehensive concept of employee training in non-profit organizations, which would be provided by the established institution within the region.

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OFFSHORE OUTSOURCING OF ACCOUNTING AS A RESULT OF GLOBALIZATION

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Abstract. Globalization is now considered a key factor of the further development of the world economy. One of the practical phenomena of globalization is outsourcing. Outsourcing means that a company uses third parties to perform non-core business activities. Through outsourcing, a company can access the state of the art in all of its business activities without having to master each one internally. Offshore outsourcing is the process of relocating non-core business activities to countries with lower labour costs but equal expertise. Offshore outsourcing is mainly used by companies with global operations. The outsourcing services are most often used in the area of information technology, law and accounting. The accounting activities are now increasingly the subject of outsourcing. The main reason is that accounting is an activity mandatory for each business entity, but it is rarely related to the core business activities performed by the business entity. Offshore outsourcing of various accounting activities is becoming an increasingly attractive option for many companies as a means of gaining access to scarce skills, cutting costs and obtaining competitiveness. The paper´s aim is to describe the process of offshore accounting outsourcing with emphasis on its benefits and risks which have been studied in a particular company.

Keywords: accounting, globalization, offshoring, outsourcing

JEL Classification: Q14, M21, M40, M41

1. Introduction

By the entrance of Slovakia into the European Union (EU) the Slovak market became the part of the unified market of the EU member states. The protection in the form of customs and administrative restrictions was abolished and the market became global and integrated (Tóth et al., 2016). Ongoing internationalization and permanently growing world globalization processes shape the market and influence business activities, demands and needs of enterprises (Országhová et al., 2016; Babčanová et al., 2012). The development of the regulatory framework of markets, technical and organizational innovations, and new societal and consumer perceptions in integrated Europe, have changed the business context and the determinants of corporate success (Pakšiová, 2016). The global market and consolidating position of Europe on such market place high demands on the level of knowledge and its transfer into new, progressive concepts, methods and tools of the financial management (Bartosova et al., 2015). Globalization allows for reallocation of sources of production resources, including work, on international scale depending on their price and availability. Development of relationships between economies, growth of liberalisation and integration of

trade markets, cooperation of regional blocs, such as European Union, affect conditions of running business activity (Skórska, 2016). Because of globalization, many organizations have business interests in more than one country. In particular, outsourcing and offshoring are now common practices requiring managers to organize procedures, methods and interventions that can be appropriately applied in different countries (Chong, 2013).

Outsourcing of production, services, and various economic activities is a pervasive phenomenon across industries. Outsourcing refers to the practice of a firm entrusting to an external entity the performance of an activity that was erstwhile performed in-house. The outsourced activity could either be the manufacturing of a good or the performance of a service (Varadarajan, 2009). Outsourcing supplies such corporations more adaptability, cost savings and low-priced inputs, and renounces some direct supervision, bringing in novel risks, especially regarding quality and reliable supply (Dauvergne & Lister, 2012). One of the key economic benefits of this popular practice, as outsourcing is, is that it allows the outsourcing firm to reduce its fixed costs such as expenditures on equipment, information technology, fixed salaries of employees and convert those into a variable cost in the form of the purchase price that the outsourcing firm then pays the outside industry (Liu & Tyagi, 2017).

Outsourcing to a third party firms based in other countries is commonly referred to as offshore outsourcing, and sourcing from firm´s subsidiaries located in other countries as offshoring (Varadarajan, 2009). Nearshoring is a specific form of offshoring. It is basically about offshoring within geographically close countries. For firms in developed countries offshore outsourcing began as an effective means to reduce manufacturing and processing costs and to focus on core business activities (Li et al., 2008). Many service processes can be performed thousands of miles away from the customer. Any task that can be transmitted electronically is a candidate for being performed offshore (Metters, 2008). Companies offshore mainly to seek costs efficiencies by exploiting wage differentials (Bhalla et al., 2008). Clearly, there is much more to outsourcing than simply saving money. Offshore outsourcing creates both new opportunities and often unrecognized hazards, which may limit a firm´s prospects. The risks associated with offshore outsourcing include the risk of volatility in the supply market, the risk of incomplete specifications, and the risk that the organization cannot effectively judge whether the supplier is performing on the contract (Ellram et al., 2008).

Outsourcing and offshoring contribute to the development in developing countries of the world by means of applying the international division of labour. On the contrary this trend is the subject of critic especially in the USA as the developed countries lose job opportunities for own habitants in consequence of offshoring. For this reason the debate on the process of reshoring started (Ellram, 2013). Reshoring (often also called “backshoring”, “onshoring”) that is associated with transferring workplaces back to highly developed countries, is mainly observed in industry, although it is shown that it may also concern the service sector in increasing degree. There are predictions that reshoring will constitute one of the most important trends in the 21st century, even though it certainly does not represent the end of offshoring. The reshoring discussion is less prominent in Europe. One reason is that in contrast to the United States, European manufacturing overall has been less affected by the offshoring of activities (De Backer et al., 2016).

2. Methods

We derived from the analysis of intra-organizational environment of a selected company. The analysed company is presented by a food company owned by an internationally oriented Austrian company. The theoretical and empirical research has been applied for the achievement of paper's task. The basic input materials for paper's processing represent scientific literature, internal materials of the analysed company and data acquired from the empirical research. The collection of empirical data has been applied by the utilization of compromise form between the structural and non-structural interview. The respondents are represented the employees of accounting department of the analysed company. Generally accepted basic research methods consisting of selection, analysis, synthesis, induction, deduction and comparability were used when preparing the paper. The mentioned methods present the basic methodological attitude to the theoretical as well as empirical paper´s part.

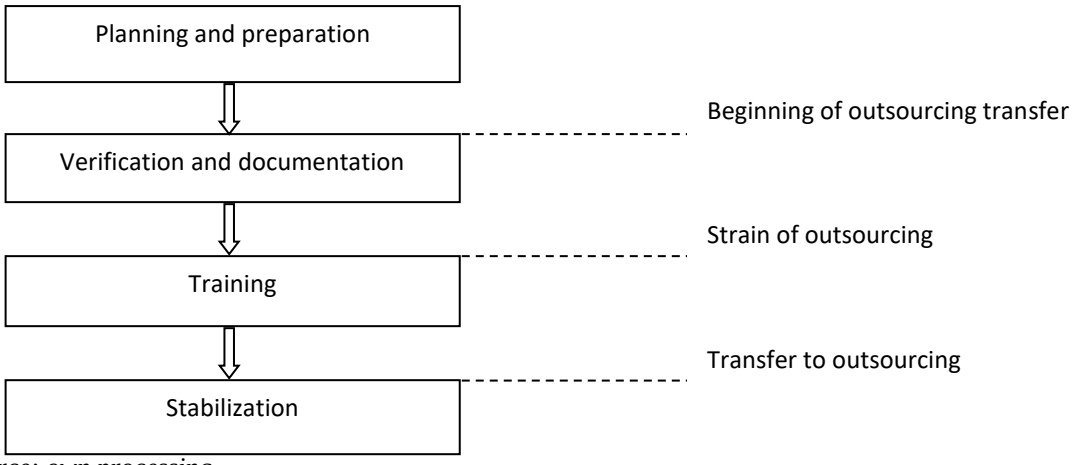
3. Results and Discussion

The application of intercompany processes outsourcing in the analysed period was based on the decision of a parent company. The strategic analysis of main and supporting activities, determination of possible activities to be excluded from internal securing, analysis of outsourcing attributes were preceding this decision. Based on the conducted analysis a parent company decided to apply the outsourcing in the accounting area. Metters (2008) states that many service processes can be performed thousands of miles away from the customer. Pursuant to the author's opinion any task that can be transmitted electronically is a candidate for being performed offshore. Transmitted electronically encompasses data sent via computer, voice and video communication, as well as scanned documents. Accounting data meet the condition of electronic data flow and therefore the accounting is considered to be a suitable candidate for being performed offshore.

The crucial criterion for the selection of outsourcing provider is presented by a long-term experience with the bookkeeping in various countries by reason of outsourcing implementation in accounting processes over all subsidiaries in several states (Austria, the Slovak Republic, the Czech Republic, France, Hungary, Romania, Bosnia and Herzegovina, Argentine and India). The accounting outsourcing provider became the company with a seat in Poland. The conditions for cooperation, scope and quality of services were negotiated in the agreement between a parent company and outsourcing provider (Service Level Agreement). The fact that Poland is an attractive location as regards Business Process Outsourcing/Offshoring, is approved as well as by Budzyńska (2016). The author states that Poland is centrally located in the Europe, has the access to qualified and multilingual staff and has a relatively low cost of labour. It can be concluded that the phenomenon of offshoring in Poland in the first decade of the twenty-first century was a significant economic process.

The implementation of outsourcing in the analysed company took 7 months during which the company went through several phases which were identified as follows (Figure 1).

Figure 1: Phases of outsourcing implementation



Source: own processing

The implementation of accounting outsourcing in the analysed company presented the third phase of outsourcing implementation of accounting processes within a parent company. During the third phase the outsourcing implementation was in progress as well as in another subsidiary in the Czech Republic. Within the planning and preparation of transformation of accounting processes the experience received from the outsourcing implementation in prior two phases in other countries was utilized. For this reason the verified time schedule was used as well as the plan of accounting processes migration. Within the initial accounting outsourcing implementation in the analysed company the project team and tasks for individual team members were determined.

The second phase of implementation was focused on the validation of accounting processes, their description and preparation of documentation on particular steps of accounting processes. The description of accounting processes was performed in the company by the employees of outsourcing provider. The employees of accounting department delivered the information on performing of individual accounting processes including their demonstration. They provided the manner of data recordings into the information system, described control mechanisms and legislation requirements. Consequently based on the validation of accounting processes and acquired information the employees of outsourcing provider documented the particular steps of accounting processes and created so called desktop procedure. In this phase of the outsourcing implementation the information systems were prepared as well as data transfers of both companies, accesses and authorizations for individual operations for the outsourcing provider employees were defined. The phase of validation and documentation was time-consuming and within this phase it was indispensable to continuously verify the correctness of documentation by the employees of the analysed company as the quality of prepared documentation significantly influences the quality of provided services and occurrence of records errors in the future. All accounting processes were documented which the company decided to outsource (Table 1). This phase of implementation is considered to be a key aspect which determines the successfulness of whole outsourcing relation.

Table 1: Outsourced accounting activities in the analysed company

Trade liabilities
Administration of suppliers master data
Categorization of accounting documents from suppliers
Preparation of supplier invoice for approval
Control of formal and content correctness of supplier invoice
Recording of supplier invoice
Recording of credit notes from supplier
Processing of electronic invoice
Preparation of payment run for bank
Control of supplier account and report creation
Return of supplier invoice
Processing of other accounting documents from supplier
Closing operations
Trade receivables
Process of reminders
Control of customer account and report creation
Solving of customer insolvency
Closing operations
Recording of value adjustments to receivable
Recording of receivable write off
General ledger
Processing of electronic bank statement
Offsetting of receivables and liabilities
Reconciliation of receivables and liabilities within a group of related accounting entities
Preparation of documents for audit

Source: internal company materials

In the third phase of outsourcing implementation the trainings were held in the residence of outsourcing provider secured by the employees who created the documentation on particular accounting processes. The outsourcing provider employees had the access to a testing company information system where the individual steps of accounting processes could be tested pursuant to the created documentation. In case of a need for support and information these were provided by the employees of the analysed company.

The final project phase began in an agreed date of a complete transfer of responsibilities for particular accounting processes from the analysed company to the outsourcing provider. In this phase the provider employees started to perform all negotiated accounting operations under the actual intensive control of correctness by the employees of accounting department. The key aspect in the stabilization phase was the communication between the teams of both companies and the feedback. The revealed errors were reported in a written form and subsequently reasons were analysed and measures were applied. The stabilization phase lasting approximately 4 months provided the employees of outsourcing provider with a sufficient time space for acquiring the routine when performing individual accounting processes. After the implementation of accounting outsourcing the job description of employees in the accounting department changed. Before the outsourcing implementation the accounting operations were performed by them, after the implementation they managed them. After the outsourcing implementation the employees' tasks of accounting department have been determined as follows:

- Management of accounting processes performance by the outsourcing provider so the completeness and correctness of bookkeeping is secured.
- Performing and management of accounting processes which were not outsourced.
- Accounting expert and contact person for customers and outsourcing provider, solving of extraordinary cases and providing of professional help.
- Control and analytical activity.
- Supervision over quality provided services and meeting contract conditions with outsourcing provider.
- Proposal and implementation of changes and measures which lead to the improvement of accounting process and the improvement of cooperation with outsourcing provider.

In the agreement between the company and outsourcing provider the key performance parameters were determined and their weights depending on the importance of a particular parameter for the company. E.g. the most significant performance parameter with 20 % is the amount of suppliers invoices recorded without any errors while the task is 98 % from the total number of recorded invoices. The assessment data present reports automatically generated by the outsourcing provider in the required structure and agreed time intervals. The error occurrence of individual accounting processes is assessed on the basis of complaints which are submitted by the accounting department employees in case of error reveals when processing or recording of accounting documents. The most revealed errors which are the reasons for submitting a complaint are following: incorrectly recorded amount, text, tax code, account number of general ledger, date, business partner, payment term, incorrectly selected authorized person for invoice, error of formal correctness of accounting document, change of master data of business partner based on the incorrect and unverified documents. In order to exclude the needless errors it is indispensable to secure the regular communication between the chief accountant and the responsible person of outsourcing provider in the form of teleconferences.

Nicholson & Aman (2008) state two types of risks in connection with the outsourcing: relational risk and performance risk. Relational risk is, in essence, the risk of a vendor or client not co-operating in good faith. Opportunistic behaviour such as cheating, shirking, distorting information etc. may be manifested by either vendor or client, or indeed both companies. Performance risk is by authors defined as the probability and consequences that outsourcing objectives are not achieved despite co-operation between partner companies. Performance risks are caused by breakdown in operations at the vendor location due to the complexity of operations, geographical separation, cultural differences or limitations of communications equipment. Interviewees in analysed company perceived there to be no relational risk incurred by transferring work to Poland but considered there to be a performance risk. Communication between the company and the offshore vendor is sometimes problematic due to language ability. English is not a first language for staff in Slovak Republic and Poland. Interviewees reported that they experience difficulty in communicating in English when using email and the telephone. This problem often causes misunderstanding, and delays the process.

In order to eliminate the risks related to the outsourcing the following measures have been proposed:

- Contract definition of authorizations for company employees and employees of outsourcing provider.

- Exchange of information and instructions between company employees and employees of outsourcing provider always in a written form.
- Customizing of automatic number controls in the information system.
- Automatic generation of reports on changes in master data of business partners.
- Data change always based on the verified paper documents and consequent archiving of this document.
- Additional data approval in case of exceeding definite financial limit.
- Application of four-eye principle in the company.
- Compliance with the security politics principles of information systems.

4. Conclusion

Outsourcing of various accounting activities is becoming an increasingly attractive option for many companies as a means of gaining access to scarce skills, cutting costs and obtaining competitiveness. The paper described the implementation process of outsourcing of accounting activities in a particular company. The implementation process consisted of four phases from which the most essential is considered to be the phase of validation and documentation. This phase is the assumption of successfulness of outsourcing relation. The outsourcing provider is the company with the seat in Poland which is the part of worldwide trend of transferring intercompany processes to cheaper countries. The selection of outsourcing provider in Poland, i.e. nearshore outsourcing, is considered to be more effective than offshore outsourcing. There is no time difference between both countries and the cultures of the country of origin and the nearshore country are less foreign to each other than when comparing it with the culture of an offshore country.

The measurable criteria for each accounting activity are defined in the agreement with the outsourcing provider for which their meeting is regularly assessed. Several risks are combined with the outsourcing. We identified the performance risk within the analysed outsourcing relation. This risk arises from the usage of English language in the communication of both teams which is not their native language. Lack of ability to communicate clearly in the English through emails and telephone caused frequent misunderstanding. In order to eliminate errors and risks combined with the outsourcing the certain measures were proposed to the company.

Acknowledgment

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GLOBAL TRENDS IN STREAMLINING TAX ADMINISTRATION WITHIN ENVIRONMENTAL TAXES

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Abstract: The European Commission in terms of environmental taxes is one of the most effective instruments for achieving environmental policy objectives. The European Commission even sees the environmental taxes as one of the most effective tool that allows achieving environmental policy objectives. The aim of this document is to present the most important information on the impact of the economic activity sectors - energy, industry on the environment. Impact is measured using indicators and indicators reports. The assessment is based on the methodology developed by the Organization for Economic Cooperation and Development (OECD) and the European Environment Agency (EEA). The methodology of indicators is based on a causal link between actual state and environmental trends. The introduction of environmental taxes can lead to many desirable effects on businesses. It is necessary to introduce environmental care principles as a key instrument for the sustainable development of each organization. Environmental protection activities need to be explored and improved. Economy and its globalization are characterized by a constantly new trend not only in the economic environment but also in the functioning of a suitable facility, such as the tax office, financial and customs administration. The essence of this research is the administration of taxes and fees in the Slovak Republic as an important part of the public administration, its main roles, legal regulations, basic principles of tax procedure and this compared to the EU countries. Tax or fiscal control processes at a tax office.

Keywords: environmental policy, customs administration, environmental trends, energy demand, indicators reports

JEL Classification: H23, H25**,** F60

1. Introduction

The main purpose of this contribution is to outline global trends in tax administration in environmental taxes. The countries tax mix influences the strategies that tax administration can use. The tax is levied at the wrong time and in a legal amount (Bielikova & Chlebikova, 2015). Tax management practices are also likely to be different in European countries and tailored to specific market segments and to the risks of the tax system identified on each market or type of taxpayer. There is bidirectional causality relationship between government spending, direct tax revenue and indirect tax revenues (Farmer & Lahiri, 2006*).* Therefore, the tax mix will have an impact on the risk management approach adopted by the tax agency and

the subsequent allocation of resources that follow. Under these circumstances, tax behavioural can´t be generalized. Kubátová (2010) distinguishes the reasons for introducing environmental taxes and the effect of these taxes.

- Environmental taxes are taxes that are expected to have a positive impact on the environment. It is not unconditional that everything harmful will be eliminated, but that it will be minimized, eliminated. Taxation is a factor that is reflected in taxes. The environmental tax may not only be an environmental tax, but also the one in which implementation was not meant to protect the environment Kubátová (2010).
- The Organization for Economic Cooperation and Development defines ecological taxes as a one sided state payment without counter-service. The tax bases, which in this case, especially in environmental taxes, are considered to be relevant in view of their relationship to the environment (OECD 2001).

(Cnossen 2005) writes that environmental tax can also be classified as consumption tax. At the same time, it writes that demand for it is not flexible. (Široký et al. 2008) categorizes environmental tax by purpose into 4 groups. Several authors point to the impact of taxes and public administration on business develop-ment (Harumová, 2012), (Dobrovič et al., 2016) a (Kalusová, 2015). One group - Pigovian taxes, in this case, the direct causes of environmental pollution are taxed and are subsequently imposed on a pollutant unit. This logically causes either a reduction in the production of undesirable and environmentally damaging products or an incentive to introduce emission-reducing technologies. The problem can be to measure the amount of harmful substances or to adjust the pollution prices. The second group - Indirect environmental taxes - these have a direct link and impact on environmental pollution, through the taxation of certain products that cause environmental tax. In this case, there is also a substitute factor for which tax may be charged. Last groups - Taxes with unplanned environmental impacts - Taxes with a positive impact without being determined. An example would be tax, for example, the price of the car. The effect here occurs when the demand for cars is reduced and thus the production of these negative environmental influences and purpose environmental taxes - all those at least part of which are for ecological purposes. Globalization increases the competitive pressure on companies that are confronted with wider competition, as it was in the past (Zagoršek, 2014).

2. Global income tax and an increased role for environmental taxes

The development of public administrations is therefore at the center of the interest of several scientific studies (Rogers et al., 2015) and (Neely, 2015) and (Minárová et al., 2015). Related observations made by Warren (2004) were a trend away from global income taxes to different source of income taxed at different rates, as well as increased reliance on indirect taxes, particularly consumption taxes. A shift away from global income tax represents policy settings by the government, including increasing or decreasing the burden of taxation on particular segments or activities. Future returns over multiyear horizons are negatively related to sentiment (Brown & Cliff, 2005). For this reason, tax authorities should encourage taxpayers (Alm & Torgler, 2011). The policy settings in effect pick winners and losers, based on economic or social assumptions and objectives, and arguably have a distortive effect. Scheduler approaches also raise their own complexities such as the allocation of income to a particular schedule item. The reduced reliance on company taxation, the shift to scheduler approaches, and the increased role of consumption taxes have implications for a country's tax mix (Burton, 2005). For example, most OECD countries now have an increased role for

consumption taxes in funding government expenditure (Preston, 2012). While technological changes have reduced the compliance costs of Value Added Tax (VAT) systems, they remain regressive in nature. They are often tied to some sort of compensation package to assist people on lower incomes. In addition some VAT systems have carve outs for items such as food and education. In developing countries many low income groups are excluded from the tax net by high thresholds, given the difficulties of administration, compliance cost issues and social policy. In connection with the law institutes, it is necessary to point out the different nature of the law institutes, the decomposition of totals into individual parts (Majerova et al., 2015). Over the last decade the OECD's Forum on Tax Administration (FTA) and the European Environment Agency (EEA) has shone the spotlight on tax administration issues. Within the context of a global economy, rapid technological change and fiscal challenges for government, the forum aims to improve taxpayer services and tax compliance by helping revenue bodies increase the efficiency, effectiveness and fairness of tax administration and reduce the costs of compliance. The work of the FTA is helping tax agencies to improve their administrations. For example, given the challenging cost reduction targets set for many tax agencies, and the expectation that they also maintain or even improve their standards of service delivery and the effectiveness of their of their activities, the search for best practice is being facilitated by the FTA. The FTA is undertaking a project, 'Working Smarter' to examine measures taken by revenue bodies to reduce costs and increase efficiency in the areas of structuring, compliance, service delivery, and legislation. More generally, the FTA has provided thought leadership on modern tax administration. As Evans (2014) observes there has been a trend to give the tax systems greater legitimacy, and also to quicken their pace of change. In some countries these objectives underpin moves to make tax agencies autonomous or semiautonomous structures that provide independence of tax administration from the political sphere. There is in these situations an assumption that a change in status would provide the tax agency with more flexibility and speed of response in terms of pay outcomes, recruitment and other administrative processes, and importantly, independence in decision making. Whether this assumption holds true will depend on the realities of the particular jurisdiction. In the following lines, we will focus on the theoretical, basic level of development of environmental taxes. In 2016, the European Commission published a second report on energy and cost prices in Europe. The report states that wholesale energy prices and retail prices of petroleum products have fallen in recent years, although most of their retail prices.

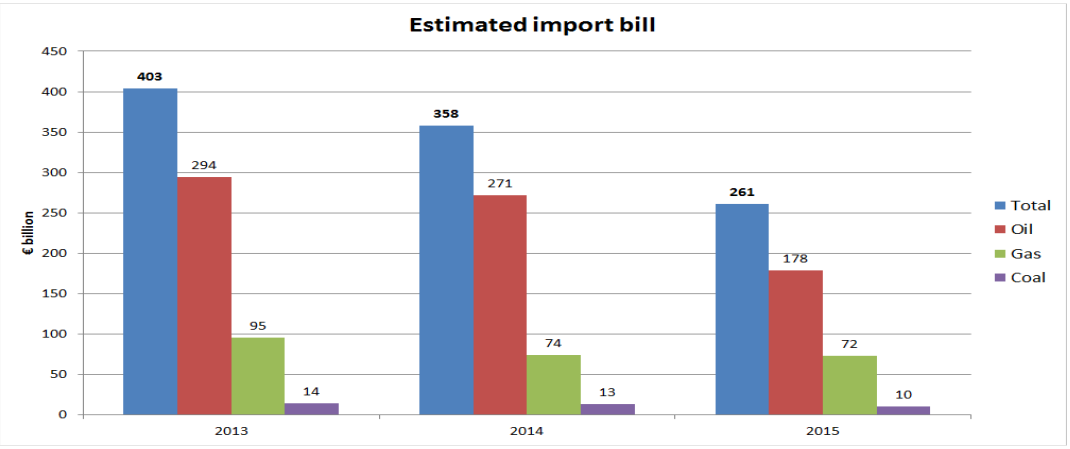
3. Data and Results

3.1 The statistics on energy finance affect business and environmental policy

Energy is an indispensable aspect of our daily lives. From this reason the European Commission produced a first report on energy prices and costs in 2014. This showed a picture of high global energy prices, with prices diverging considerably across EU Member States, and significantly higher for Europe than for its international trading partners, particularly the United States. Retail prices had risen more than wholesale prices because of increases in network price component and taxes and levies. Data weaknesses led to the recommendation to improve the detail, transparency and consistency of energy price data collection. The report's policy conclusions found that the data and evidence presented showed the partial development of the internal market for energy and a need for further measures to improve Europe's energy efficiency and security and diversity of low carbon energy supplies. The energy union framework strategy and its roadmap set the framework for taking this work forward every two years, starting in 2016. These statistics are very good in terms of being able to get people

closer to themes and to better understand any problems that are present in them. Report from energy prices can be helpful in reacting to energy prices where the main problem is often the only inefficiency of consumption. The paper contains a number of graphs that have been statistically processed and which report on the financial aspect of energy, especially across the European Union.

Figure 1: Estimated EU fossil-fuel import bill



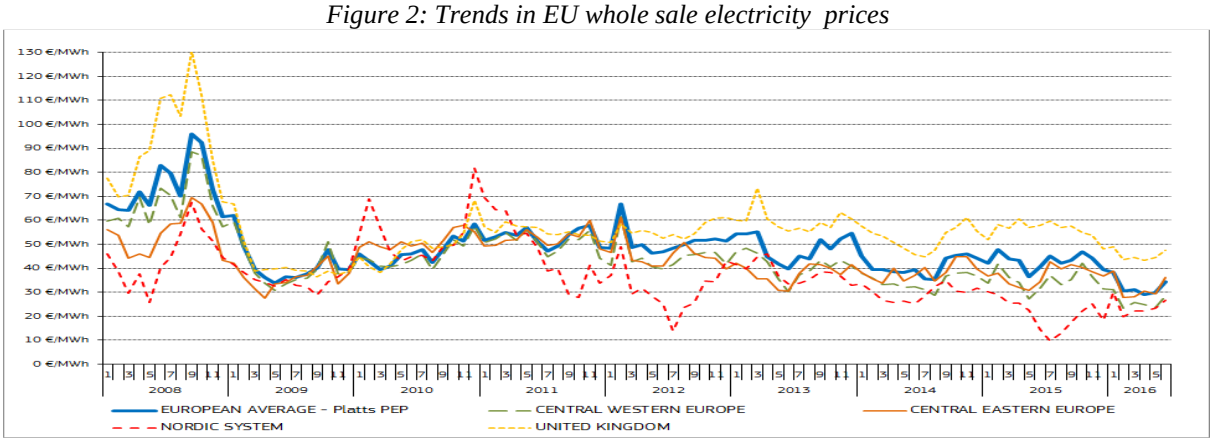
Source: European power exchanges

Prices of all fossil fuels (most notably oil) have declined. At a time of continued subdued economic growth, this has led to a 'one-off' boost to the EU economy, which has been estimated at a potential GDP increase of 0.8 % in 2015 and 0.5 % in 2016. ***Stochastic indicator*** is composed of two curves: the curve labelling of % K and % D curve. Mathematical calculation is apparent from the attached formulas:

$$\%K = 100 \times \left[(C - Lx) \div (Hx - Lx) \right] \tag{1}$$

Where C = the last closing price (close) at the relevant time period (timeframe); Lx = the lowest point (low) for a selected period of time; and Hx = the highest point (high) for the selected time period. ***Indicator as prices*** of all fossil fuels (most notably oil) have declined. At a time of continued subdued economic growth, this has led to a 'one-off' boost to the EU economy, which has been estimated at a potential GDP increase of 0.8 % in 2015 and 0.5 % in 2016.

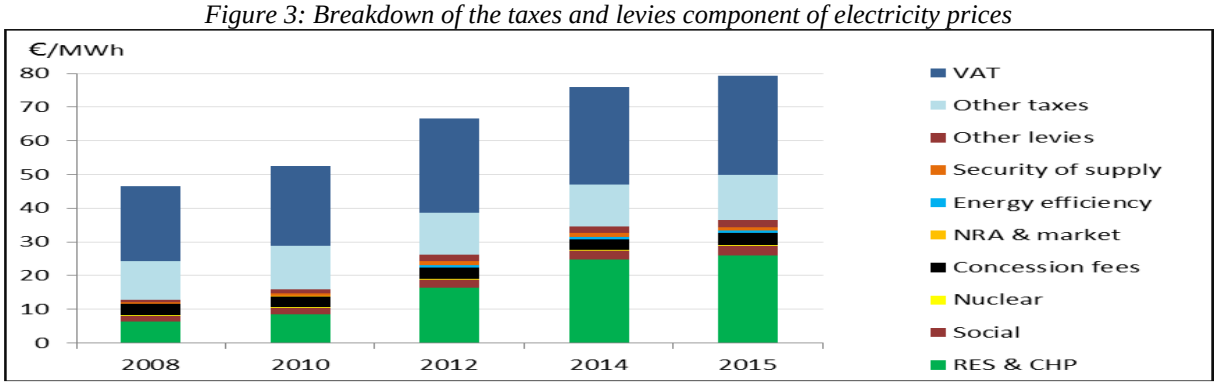
Figure 2: Trends in EU whole sale electricity prices



Source: European power exchanges

Prices have fallen by almost 70 % since 2008 and by 55 % since 20115 and in 2016 reached levels not experienced for 12 years.

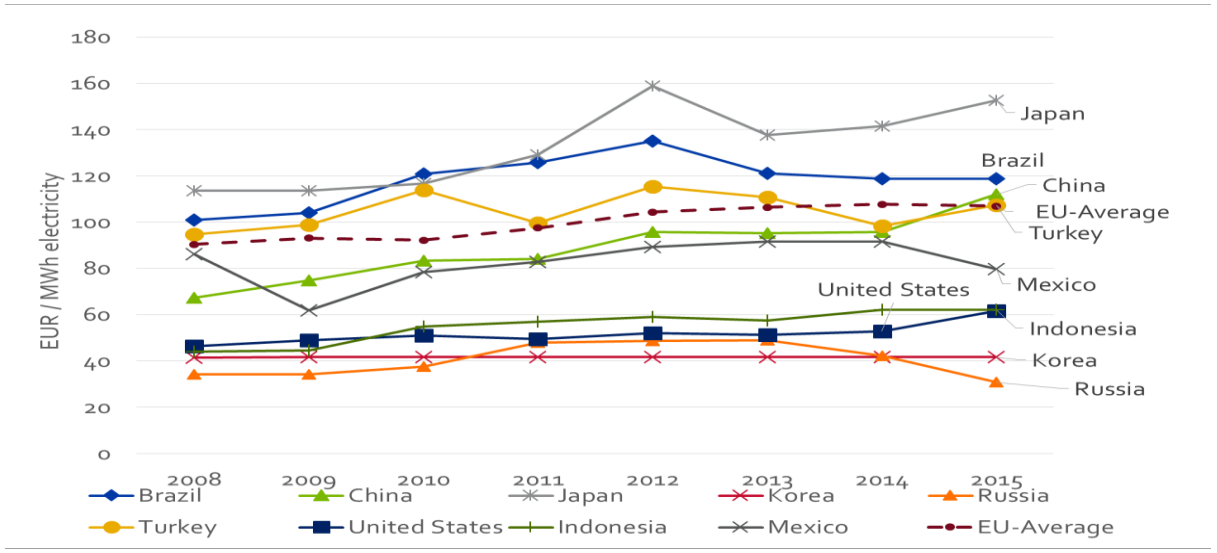
Figure 3: Breakdown of the taxes and levies component of electricity prices



Source: Member State, Commission data collection

VAT is the largest subcomponent, accounting for 37 % of the taxes and levies component in 2015, down from 48% in 2008. As an ad valorem tax, VAT has the advantage of not dampening wholesale price signals in retail prices. The largest reported subcomponent of relevance for energy policy is made up of levies supporting 'renewable energy and combined heat and power'. It accounted for 33 % of the total component in 2015, up from 14% in 2008.

Figure 4: Average industry electricity prices in the EU and major trading partners



Source: Brazilian Ministry of Mining and Energy, Chinese Price Monitoring Centre, NDRC, Indonesian State Electricity Company, Russian Federal State Statistics Service; EIA data for Turkey, S Korea, Japan.

The analysis shows that average EU industrial electricity prices are notably lower than in Japan, more or less similar to Brazil, China and Turkey, and higher than in Korea, the US, Russia and Indonesia. From 2008 to 2015, EU prices increased by 17 %, but price rises were significantly higher in China (66 %), Indonesia (41 %), Japan (34 %) and the USA (32 %). The analysis incorporates the effect of exchange rates, which is significant in some cases (e.g. the yuan's appreciation explains the increase for China; prices rose only marginally in the national currency).

4. Discussion

OECD Environmental Indicators

Over the past 30 years, environmental policies and related reporting activities adopted by OECD countries have steadily evolved. This evolution has been largely driven by increased public awareness of environmental issues, their international aspects and their linkages with economic and social issues. Initially the demand for environmental information was closely related to the definition and implementation of environmental policies and their effects on the state of the environment. Over the years, policy priorities evolved, as did demands for reliable, harmonised and easily understandable information, not only from the environmental community but also from other public authorities, businesses, the general public, environmental NGOs and other stakeholders. At the same time, international activities and co-operation on the environment continued to grow. This has stimulated a number of countries to produce environmental information that is more responsive to policy needs and public information requirements. The aim is to further strengthen countries' capacity to monitor and assess environmental conditions and trends so as to increase their accountability and to evaluate how well they are satisfying their domestic objectives and international commitments. In this context, environmental indicators are cost-effective and valuable tools.

Framwork and Structure

The conceptual framework adopted for sectoral indicators is derived from the PSR (Population Statistics Reference system data model) model, but was adjusted to account for the specificities of the respective sectors. As defined by OECD countries, sectoral indicators have been organised along a framework that distinguishes:

- ***indicators*** reflecting sectoral trends and patterns of environmental significance (i.e. indirect pressures and/or related driving forces); indicators reflecting interactions between the sector and the environment, including positive and negative effects of sectoral activity on the environment (i.e. direct pressures, such as pollutant releases and resource use, and related effects and resulting environmental conditions, such as ambient concentrations of pollutants and population exposure), as well as effects of environmental changes on sectoral activity; indicators reflecting economic linkages between the sector and the environment, as well as policy considerations. This category includes environmental damage and environmental expenditure, economic and fiscal instruments, regulatory and social instruments, and trade issues.

5. Conclusion

OECD forum on tax administration and global trends in tax administration

Over the last decade the OECD's Forum on Tax Administration (FTA) has shone the spotlight on tax administration issues. Within the context of a global economy, rapid technological change and fiscal challenges for government, the forum aims to improve taxpayer services and tax compliance by helping revenue bodies increase the efficiency, effectiveness and fairness of tax administration and reduce the costs of compliance. It seeks to do this by sharing experiences of revenue bodies, promoting co-operation between member countries, and developing joint programmes of action on key tax administration issues. For example, at the Ninth Meeting of the FTA (Dublin 23-24 October 2014) participants agreed: A strategy for systematic and enhanced cooperation between tax administrations; To invest

the resources needed to implement the new standard on automatic exchange of information; and. To improve the practical operation of the mutual agreement process. The work of the FTA is helping tax agencies to improve their administrations. For example, given the challenging cost reduction targets set for many tax agencies, and the expectation that they also maintain or even improve their standards of service delivery and the effectiveness of their of their activities, the search for best practice is being facilitated by the FTA. The FTA is undertaking a project, 'Working Smarter' to examine measures taken by revenue bodies to reduce costs and increase efficiency in the areas of structuring, compliance, service delivery, and legislation.16 More generally, the FTA has provided thought leadership on modern tax administration.

As Evans (2014) observes there has been a trend to give the tax agency greater legitimacy, and also to quicken their pace of change. In some countries these objectives underpin moves to make tax agencies autonomous or semiautonomous structures that provide independence of tax administration from the political sphere. There is in these situations an assumption that a change in status would provide the tax agency with more flexibility and speed of response in terms of pay outcomes, recruitment and other administrative processes, and importantly, independence in decision making. Whether this assumption holds true will depend on the realities of the particular jurisdiction. With greater autonomy comes greater responsibility, and accordingly any change in the status of the tax authority is usually accompanied by a suite of additional checks and balances. This trend towards tax agency independence is often accompanied by taxpayer appeal rights, external scrutiny of the tax agency, for example, the government audit office and a tax ombudsman, as well as parliamentary reviews. Leading tax agencies often have at the centre of their reform initiatives improvements in the skill level of their officers. This has been sought to be achieved through flexible recruitment practices designed to induct quality applicants, a focus on training and development, and the development of systems that capture and allow the repetition of best practice. As they say (Sedliačiková et al., 2012), globalization is also one of the most important realities. The modern trend for tax agencies is for more highly skilled officers, with merit-based promotion, and performance management and development systems.

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RESEARCH THE INNOVATION AND TECHNOLOGICAL DEVELOPMENT AND OPPORTUNITIES FOR ACHIEVING GLOBAL TECHNOLOGICAL LEADERSHIP

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Abstract. Achieving global technological leadership at the present time is the basis of competitiveness and economic development of any state. Therefore it is very important to realistically assess the situation in this area and find ways to accelerate innovation and technological development of the state. The aim of this research is to study the current state of Russian innovation and technology sector, conducting of international comparisons in this field of study and assessment of the prospects for Russia to achieve global technological leadership in the current economic conditions. In this paper we have used a variety of theoretical and empirical research methods, including a literature review, economic and mathematical, economic-mathematical and economic-statistical analysis methods. A result of research we determined the level of modern innovation and technology development in Russia, identified and evaluated the factors affecting it, carried out international comparisons in this area, assessed the possibility of achieving a global technology leadership at the present stage of development of the Russian economy. The results of the study have a high practical value, as they will determine the future orientations and priorities of the strategic innovative development of the state in the field of scientific and technological development. In this study, we have used a significant amount of statistical data, which allowed achieving the main purpose of the study and drawing conclusions about the possibilities of achieving global technological leadership and perspective directions of innovation and technological development of Russia.

Keywords: innovative technological development, global technological leadership, scientific and technological development, GERD

JEL Classification: O11, O43, F51

1. Introduction

The relevance of the work is due to acute-onset the need to achieve global technological leadership of the state, as the basis of competitiveness and economic development. In the paper the authors investigated the main indicators of technological innovative development of the Russian economy in the context of international comparisons and the possibilities of Russia to achieve global technological leadership.

Technological branches by their nature rely on quick answers to new ideas and strive to develop culture innovations to stay at the forefront of their sphere (Plotnikov & Vertakova, 2015), and technologies are becoming both tools and framework for the life of people and societies (Babkin et al., 2015). Most economists are unanimous in the opinion that the main trigger of changes in the structure of the Russian economy, the basis of its diversification can become a high-tech industries, with the capacity to produce high value-added products (Gorbunova & Prikazchikova, 2016), (Vertakova & Grechenyuk, 2016 A), (Kulikova et al., 2016). (Plotnikov & Volkova, 2015)..

2. Body

One of the priorities of long-term government policy outlined in the recent decrees of the President of Russia, is to achieve technological leadership of the Russian economy. Creating the industries of the new technological structure in modern conditions requires a large-scale renovation industry with the goal of achieving the global technological leadership of the industry in Russia. Every year the government invests heavily in achieving the key performance indicators of scientific and technological sphere (Vertakova et al., 2015). Over the past 15 years the Federal budget has created more than 1000 objects of innovation infrastructure, including 114 technology transfer centres, techno parks 160, 200 business incubators, 300 centres of collective use. However the study of indicators of innovation development shows that the effect of public investment for the real sector of economy and social sphere could be multiples higher. The share of Russia in total world exports high-tech goods is only 0.4% (Grechenyuk & Grechenyuk, 2016). In addition, the country significantly lags behind the leaders in the number of international patents in high state spending on research, work with comparable leaders from a number of researchers (Huang & Naubahar, 2015).

According to the rating of the Global Innovation Index in 2016, the leaders were Japan, the United States, the United Kingdom and Germany, significantly ahead of other countries in terms of the level of higher education, the number of scientific publications and international patent applications filed. Russia took only 43rd place in 2016. According to the UNESCO report "On Science to 2030", Russia ranks 7th in overall spending on research and development of science (R&D). The amount of expenditures for the development of science in the Russian Federation exceeded $ 40 million, which is 10 times less than that of the leader of the US rating. Second place in terms of costs is China, investments in the needs of science which amounted to 333 million dollars. Also, Russia outperformed Japan, Germany, South Korea and France. Russia spent in 2016 on research and development (R & D) 24.8 billion dollars (1.7% of world spending, in 2008 it was 2%). While 396.7 billion dollars were spent in the United States, China - 290.1, Japan - 141.4, South Korea - 64.7, France - 45.7, Brazil - 31.3. For 2006-2016, gross domestic expenditure on research and development (GERD) has grown in the world by almost a third. The leader in terms of investment in research and development in the United States (28.1%), followed by China (20%). Japan in the third place (10%); Germany on the fourth (6%). The rest of the world brings about 33% of the total (Russia - 1.7%). In Russia the share of GERD as % of GDP is not high: it varies about 1.2%. In foreign countries the share of expenditures on research and development is much higher. Leader in 2014 is Korea, where there has been a steady trend of increase from 2.2 to 4.3%, slightly less than in Israel – 4.1% in Japan and 3.6% in Sweden and Finland – 3.2%, Denmark and Austria with 3.1%, Germany – 2,9%, US 2.7 per cent. In General, the majority of the

studied countries there is a noticeable increase in the share of gross domestic expenditure on research and development (GERD) to GDP.

An important indicator in assessing the level of innovative development of countries is the share of public expenditure on research and development. During the study period in most of the countries reviewed there is a trend of increasing the share of gross expenditure on research and development (GERD). The leader according to this indicator is Russia, where the share of expenditure on research and development funded by government, has increased from 54.8% to 69,2%. The share of GERD in Luxembourg has sharply increased (from 7 to 47%). A little less in Norway (45.6% in 2014) and Italy (41.5%). The range from 30 to 40% is observed in Austria (36%), Canada (34%), France (35%), Netherlands (33%). In Sweden, Great Britain, USA, Germany, Finland, Korea, Belgium and Denmark - 20-30%. In Japan and Israel - less than 20%. However, it is not enough to increase the volume of financing in the field of research and development, it is necessary to obtain a result from these investments. At the moment, the number of triadic patented families (Kazanskaya & Palkina, 2016), that is, applications submitted simultaneously to the patent offices of the EU, US and Japan is the key indicator characterizing the level of technological innovation development of the state. The leader in the number of triadic patent families is Japan, which recorded an average of 16.6 thousand applications per year, followed by the United States (13.8), in Germany it is three times less (5.8). Among the remaining countries, the largest number of triadic patent families in France (2.6 thousand applications a year on average), in Korea (2.3) and Great Britain (1.8). In Switzerland and the Netherlands, slightly more than 1,000. In Sweden, Italy and Canada, from 600 to 700. In Austria, Belgium, Denmark, Finland, Israel - from 300 to 450. In the remaining countries - less than 100. In Russia it was 91 applications per year.

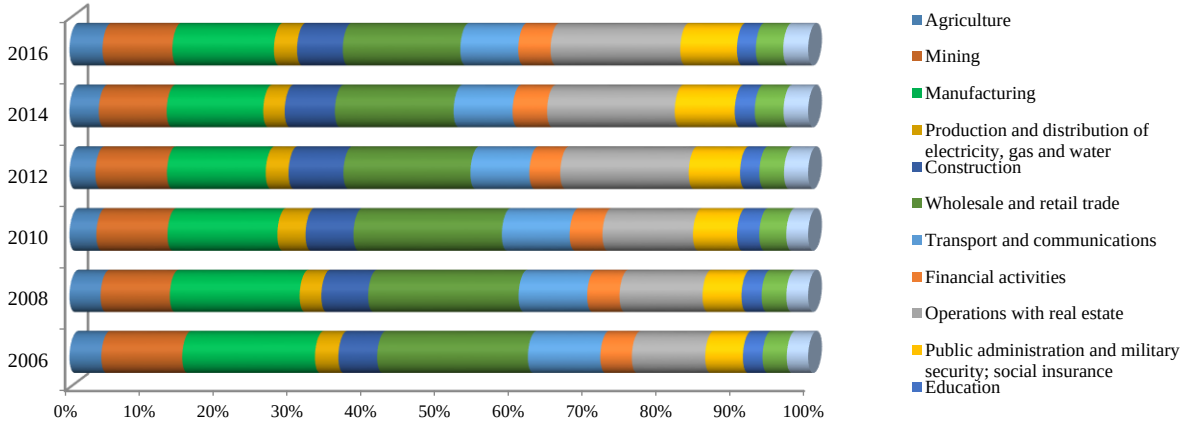
An even more important indicator of technological development is the share of countries in triad patented families. Absolute leader in this indicator is Japan (30% in 2015). Slightly less share of the US (26%). Germany - about 10%. In France and Korea - about 5%. And only in Korea there is a stable growth trend (from 1.5 to 6%). In the other countries surveyed, the share of applications in triadic patented families does not exceed 2%. In addition, for most countries, there is also a trend of decline in the indicator. From 1 to 2% are countries such as Canada, Italy, the Netherlands, Sweden. In Russia, this share is 0.2%.

In our previous studies in the field of assessing Russia's innovative development, we also received disappointing conclusions (Vertakova & Plotnikov, 2016). Russia is much inferior not only to the level of general and technological innovation development to most foreign countries, but also in the sphere of non-technological innovation development (marketing and organizational innovations). In general, in 2015 innovative activity of Russian organizations is 9%, and in most European countries more than 30% of organizations are innovative-active (in Germany and Luxembourg - about 70%). The level of non-technological innovation activity in Russia in 2015 is about 3%, and abroad this figure reaches 45% or more (Vertakova & Grechenyuk, 2016 B). The study of Russia's innovative development in the sectoral and regional contexts also showed the underdevelopment and inertness of innovation processes in most leading sectors of Russian industry and Russian regions.

The level of global technological leadership is the resultant indicator of the innovative development of the state's economy, which is influenced by a huge number of different socio-economic factors, among which a special role is assigned to the balanced structure of the economy and, above all, to the industrial sector of the state (Grechenyuk at al., 2016). It is negative structural shifts in industry that Russia does not allow at this moment to count on

achieving global technological leadership, a new technological order and an innovative breakthrough. In 2006-2016, Russia has a stable trend of GDP growth in industry (3.4 times), which was caused by an increase in GDP for all types of economic activity (Figure 1). Although the greatest growth was in real estate transactions (6 times) and public administration and military security (5 times). In manufacturing industries, GDP growth was only 2.5 times. Analysis of the gross value added by main economic activities in 2006-2016 (Figure 2) showed negative structural changes in the context of the main types of economic activity: the share of manufacturing industries decreased from 18 to 13.7%, transport and communications from 10 to 7.8%, the share of construction rose slightly - from 5 to 6%. The share of transactions with real estate significantly increased from 10 to 17.5%; State management and ensuring military security - from 5 to 8%.

Figure 1: Structure of GDP by main economic activities in 2006-2016 [%]



Source: Authors' calculations using Rosstat Data (https:// www.gks.ru/)

Another important indicator characterizing the level of scientific and technological development of the country is the share of high-tech and high-tech industries in the gross domestic product (Quinney, 2015). In Russia in 2006-2016, their share varied in different directions. In 2006-2009, it steadily increased (from 19.2 to 21.7%). However, in 2010 and 2011 there was a decline in this indicator to 19.6%. According to the decree of the President of Russia "On long-term state economic policy," the share of high-tech and knowledge-intensive industries in GDP by 2018 should increase by 1.3 times relative to the level of 2011. In 2011-2014, its share gradually increased (from 19.6% in 2011 to 21.8% in 2014). In 2015 there was a slight decline (by 0.3%), and in 2016 - an increase to 22.3%. In general, in 2011-2016, the growth was 1.14 times. Under favorable economic conditions and maintaining the growth trend, this indicator may well reach the target level (25.5%). And, of course, a key role was played by the positive structural changes of industry, provision of which is only possible with the implementation of effective measures of state support.

In accordance with the Rosstat official methodology we calculated the share of high-tech and science-intensive industries in the GDP for 2006-2016 (Figures 2-4). The analysis showed a stable dynamics of GDP growth in high-tech industries (8.5 times) due to increased production of aircraft, including space vehicles, medical products and pharmaceutical products.

Figure 2: The share of high-tech sectors in GDP, %

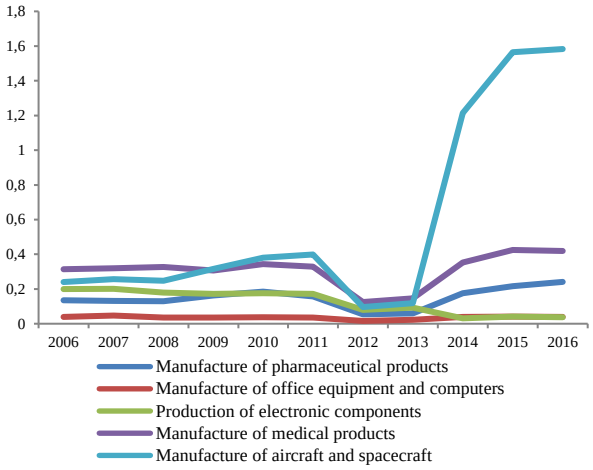


Figure 3: The share of medium tech sector in GDP, %

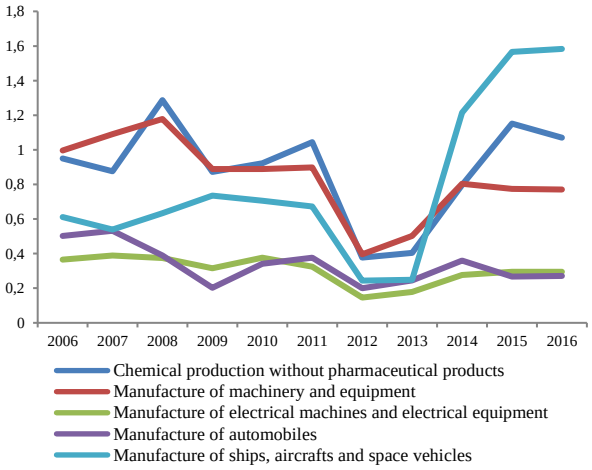
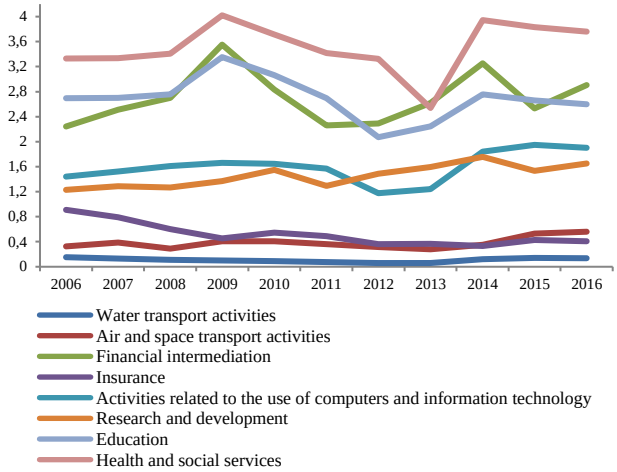


Figure 4: The share of knowledge-intensive activities sector in GDP, %

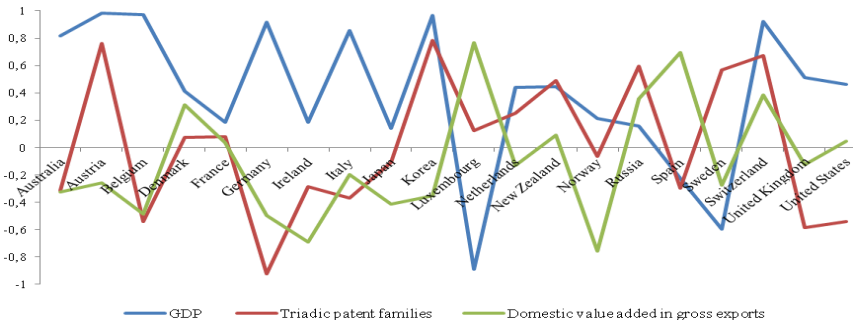


Source: Authors' calculations using Rosstat Data (https:// www.gks.ru/)

GDP in the medium-tech high-level production grew almost 4 times at the expense of all the components, but mostly due to the production of ships, aircrafts and space vehicle and other vehicles, and chemical production. GDP in science-intensive activities also increased almost 4 times due to the growth of air and space transport, financial intermediation, activities related to the use of computer technology and information technology, research and development, education and health. The largest share in GDP is taken by the mid-technology high-level sector, with growth from 3.4% to 3.9% in 2006-2016, slightly behind the sector of high technology industries (to 3.8%), the share of high-tech sector increased from 0.9 to 3.2%. However, these are very small shares that are not capable of ensuring that Russia achieves technological leadership.

At the beginning of this article, we talked about the trends in the growth of state spending on research and development. However, do countries receive the necessary effect, which is expressed in the growth of economic and technological development? To answer this question, we assess the impact of GDP on R&D to GDP, Triadic patent families and Domestic value added in gross exports in the studied countries (Figure 5) in 2006-2016. As we expected, in most of the studied countries GDP on R&D has the greatest impact on GDP.

Figure 5: Impact of GDP on R&D to economic and technological development in the studied countries



Source: Authors' calculations using OECD Data (https://data.oecd.org)

As we expected, in most of the studied countries GDP on R&D has the greatest impact on GDP. The most impact was found in Austria (0.98), Belgium (0.97) and Korea (0.96). It is slightly less in Germany, Switzerland (0.92) and Australia (0.82). The impact of GDP on R&D on the Triadic patent families is not so significant - Korea (0.79), Australia (0.76), Switzerland (0.67). And in some countries, even an inverse correlation is observed. The impact of GDP on R&D on the Domestic value is also not so great - Luxembourg (0.77), Spain (0.69) and also in several countries an inverse correlation is revealed. The analysis shows the low effect of GDP on R&D on the innovation-technological level of states. Therefore, countries cannot concentrate only on growth on R&D. It is necessary to approach in a complex way the solution of the task: to achieve technological leadership of the state, to work in all directions and to use the maximum available resources (Grechenyuk at al., 2015).

And the final stage, we determined which sectors have the greatest impact on the level of scientific and technological development of Russia for 2006-2016 (Figures 6-8).

Figure 6: Impact of high-tech sector

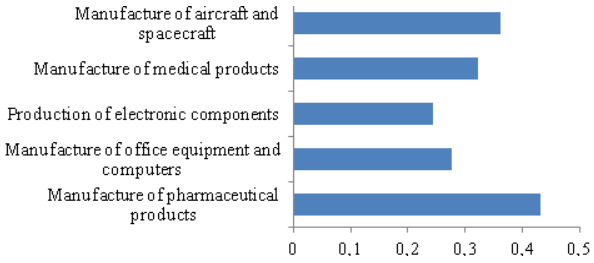


Figure 7: Impact of medium technology sector

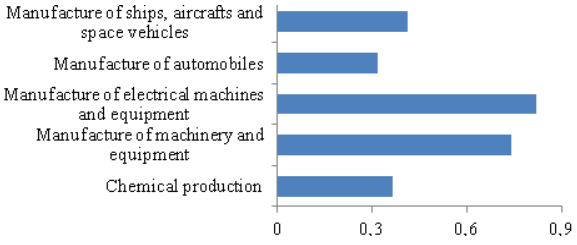
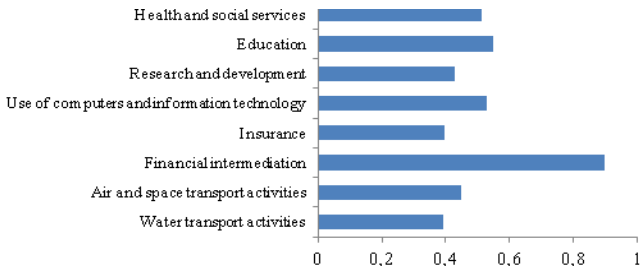


Figure 8: Impact of science-intensive activities sector



Source: Authors' calculations using Rosstat Data (https:// www.gks.ru/)

Manufacture of pharmaceutical products has an average impact (0.43). Manufacture of aircraft and spacecraft (0.36) and Manufacture of medical products (0.32) affects slightly.

Manufacture of electrical and electronic equipment significantly affects the overall share of GDP (0.81), Manufacture of machinery and equipment affects slightly less (0.74). Financial intermediation has the highest effect (0,89), Education, Activities related to the use of computers and information technology and Health and social services has average effects (0,5). Consequently, the greatest effect on innovation and technological development of the country will have the stimulation of such sectors as Manufacture of electrical machines, electrical equipment, Manufacture of machinery and equipment, Manufacture of pharmaceutical products.

3. Conclusion

As a result of the study, we can conclude that Russia can not yet claim to achieve global technological leadership. In 2016, its share from the world budget for R&D is less than 2%, while the share of only three countries - the US, China and Japan, is 55.6%. Therefore, the priority of economic development of Russia is the creation of competitive, stable and structurally balanced industry, capable of effective self-development based on integration into the global process environment, the development and application of advanced industrial technologies, aimed at forming and development of new markets for innovative products. Our study showed that the main triggers of innovation and technological development of Russia are Manufacture of electrical machines and equipment, machinery and equipment, pharmaceutical products, Education, use of computers and information technology. Improving the competitiveness is possible through the creation of the necessary infrastructure for the development of priority directions of integration into the international market and realization of innovation potential. In this regard, a key objective is to achieve a fundamental improvement of the strategic competitive position of Russian industry in the world and providing opportunities meet the needs of the domestic business in the modern products.

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IMPACT OF GLOBALIZATION ON QUALITY OF PARTNERSHIPS IN SERVICE SUPPLY CHAINS

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Abstract. This paper focuses on the topic of partnership quality in service supply chains. It examines the impact of globalization on various components of relationship among partners operating in the same supply chain. The object of research is enterprises providing services in Slovak republic. Since as a result of globalization competition increases, enterprises give more emphasis to their supply chain management. Our paper provides a complex look on how globalization affected the quality of partnerships among service enterprises and its various components such as trust, honesty, reliability and commitment. The main aim of this study is to identify the impact of globalization on selected components of partnership quality in service supply chains in Slovak republic. Data was collected via survey in two time periods – 2006 and 2016. The difference of 10 years provides a possibility to examine how globalization changed the role of partners in their corresponding supply chains and how it affected various aspects of partnership quality. Our findings indicate that there is a significant dependence between various components of partnership quality and partners' business activities. Significant changes can be observed during the examined time period as a result of increased pressures from global environment. Moreover, our research provides evidence that reliability of partner has become the most significant component of partnership quality, whereas a decade ago it was honesty of partner.

Keywords: partnerships, service supply chain, globalization, empirical study

JEL Classification: L80, C44, O31, M10

1. Introduction

In the history of modern entrepreneurship many factors have profoundly shaped the progress of companies' business orientation and their challenge to tackle market issues in order to achieve desirable results. Globalization has become a significant business factor in the last decade. Its effects vary and can be severe. There is a growing literature on measuring the affects of globalization on business operations (Bentu, 2017; Blackledge, 2017; Nakagawa, 2013; Kamensky & Tuček, 2016; Sačkov et al., 2014). However, the changing face of global service providers proved that it is not sufficient for companies to face their competition by themselves. Nowadays, the competition is not just among companies, but among their supply chains as proven by many research studies investigating the potential links between supply chain performance and quality of relationships among its members (Sodhi et al., 2010; Gozgor & Can, 2017; Pomffyová & Bartková, 2016;).

To analyze the influence of globalization on service supply chains, we need to take a closer look on their key component – partnership. Not all nodes in any supply chains can be considered partners since their position, importance and negotiations strength changes constantly. Only those companies that have stronger bonds can be considered partners and such partnerships are based on trust and honesty (Li et al., 2007; Pongsathornwiwat et al., 2017; Pun & Ghamat, 2016). Lin et al., (2016), Rahmani & Mahoodian (2017) and Taki et al. (2016) add two additional key components that are essential for successful partnership, which are reliability and commitment. Partners share a common goal and are committed to work together to achieve it since they understand that better results can be gained in synergy. Therefore, these four main components of partnerships in supply chains directly affect the quality of such partnerships. Many authors focused on this issue (Chen, 2012; Chopra & Sodhi, 2014; Han, 2013; Kafalsky & Conner, 2015; Liu & Zeng, 2008; Rajaguru & Matanda, 2013; Yan & Azadegan, 2017), however, their point of view is from a certain company or production industry. Current literature thus lacks a clear image of supply chain partnership quality viewed through the lens of certain non-manufacturing industry as a part of national economy. Therefore, the service industry was chosen as an example of Slovak economy's key business sector to analyze the quality of supply chain partnerships and its changes in the last decade due to various influencing factors including globalization with the goal of understanding the variety and interconnectness of supply chain performance parameters which provides guidelines for managers to tailor balanced and effective profit-oriented strategies for their companies.

2. Methodology

The main aim of this research study was to identify the impact of globalization on selected components of partnership quality in service supply chains in Slovak republic. Data was collected via survey in two time periods – 2006 and 2016. The difference of 10 years in our empirical research provides an opportunity to examine how globalization changed the role of partners in their corresponding service supply chains and how it affected various other aspects of partnership quality.

Table 1: Characteristics of sample file

2006				2016			
Number of employees	Percentage	Position of company in SC	Percentage	Number of employees	Percentage	Position of company in SC	Percentage
0 - 9	56.52%	supplier of raw material	0.07%	0 - 9	58.98%	supplier of raw material	1.12%
10 - 49	21.19%	supplier of components	6.90%	10 - 49	22.65%	supplier of components	5.49%
50 - 249	12.54%	main supplier	43.76%	50 - 249	6.50%	main supplier	49.95%
over 250	9.75%	producer	10.11%	over 250	11.87%	producer	12.45%
Total	100.00%	seller	30.21%	Total	100.00%	seller	29.18%
		consumer	8.95%			consumer	1.81%
		Total	100.00%			Total	100.00%

Source: Own elaboration

Our research sample file was created as a representative sample of the base file. This file consists of Slovak companies classified by the SK NACE classification as companies operating in service sector. Moreover, we took under consideration other criteria, mainly the size of company. The decisive criterion was set according to the European Standard No. 2003/361/EC. Research was carried out on a file consisting of 178 Slovak companies in both

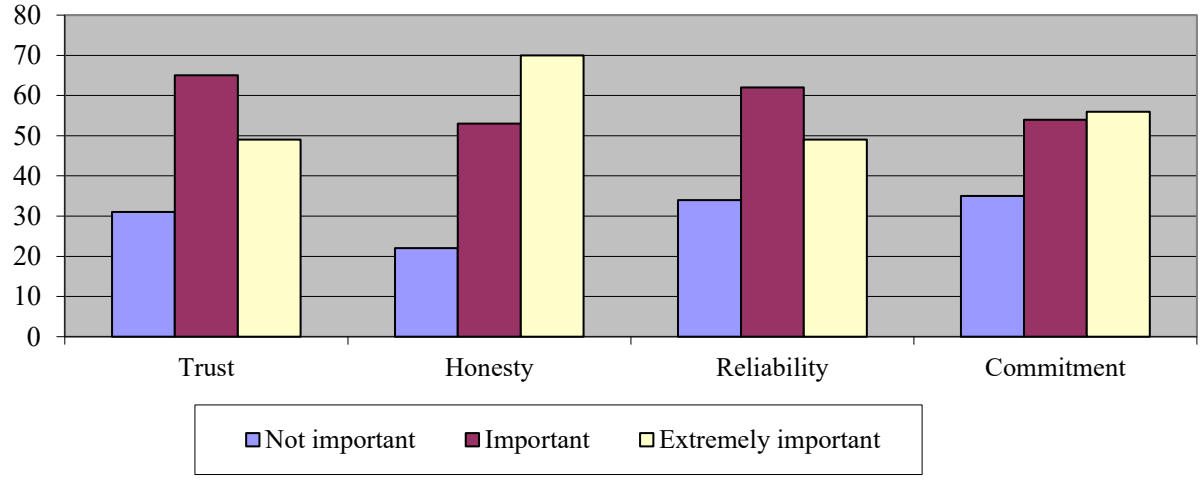
years. More detailed structure is provided in Tab.1. To verify the representativeness of the sample we used Chi-square test and according to the results of this test our sample file can be declared as representative.

To explore correlation relationships between various components of partnership quality and company's performance in supply chain and to provide more detailed image of situation in Slovak service industry we used Pearson correlation test and Multivariate Regression Analysis performed in SPSS Statistics.

3. Results and Discussion

In order to explore the impact of globalization on quality of partnerships in service supply chains a comparison was drawn between situation in 2006 and in 2016. Fig.1 and Fig.2 provide data about the levels of importance of four main partnership quality components – trust, honesty, reliability and commitment. The scale consists of three degrees for each component. They were: not important, important and extremely important.

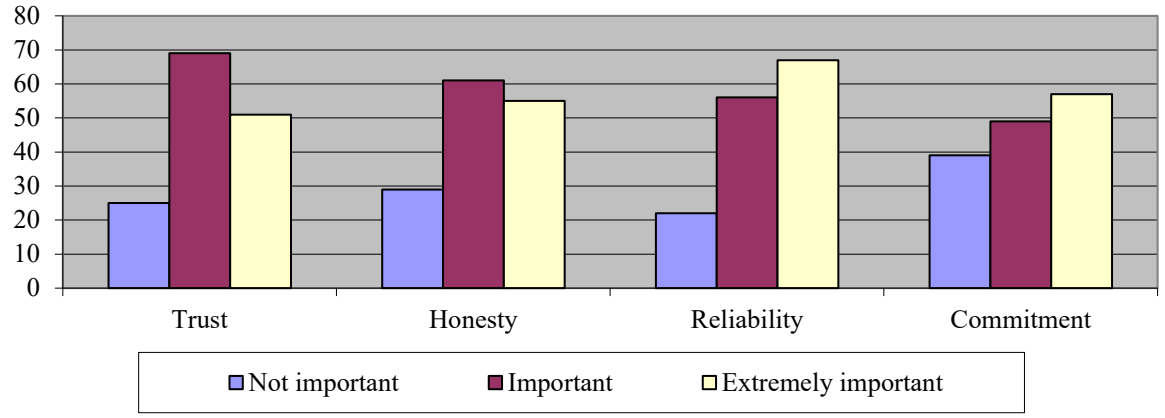
Figure 1: The importance of quality components in 2006



Source: Own elaboration

According to the data in Fig.1, honesty was given the most importance by companies operating in service sector in 2006. Cumulatively 84.83 % of companies considered this component important for functioning of their supply chain partnerships. More than 48 % of these companies considered honesty to be extremely important. The second most significant component in 2006 was trust (78.62 % of companies). Furthermore, 33.79 % of companies considered reliability extremely important for successful operations of their supply chains and 42.76 % of them considered it important. Commitment of partners was considered the least significant factor influencing partnerships in service supply chains in 2006. Only 75.86 % of companies considered it either extremely important (38.62 %) or important (37.24 %).

Figure 1: The importance of quality components in 2016



Source: Own elaboration

The situation has significantly changed in the next decade. According to the data provided in Tab.2, influence of various factors including globalization brought new developments in terms of partnership quality and the perception of its components. Reliability has become the most significant quality component. Nearly half of all companies (46.21 %) considered it extremely important and 38.62 % of companies considered it important in 2016. The second most important component became the trust (82.76 %, which is a 4.14 % increase). However, the importance of partners' honesty decreased by more than 4 % to 80 % cumulatively for both the extreme importance and importance. Commitment remained the least significant component of partnership quality. Only little over 73 % of companies considered it important in 2016.

Furthermore, we explored the impact of globalization on the relationship between partnership quality and companies' business performance. Multivariate Regression Analysis model was introduced to discover and measure significant relationships. The relationships were tested at confidence level of 95 %. The model is formulated as follows:

$$Y = \beta_0 + \beta_1 \times X_1 + \beta_2 \times X_2 + \beta_3 \times X_3 + \beta_4 \times X_4 + \beta_5 \times X_5 + \sigma(Y) \quad (1)$$

where:

Y is the quality of partnership

β_0 is intercept

$\beta_1 - \beta_5$ are regression coefficients

$\sigma(Y)$ is residual standard deviation

X_1 is achieved profit in a given year

X_2 is duration of partnership

X_3 is number of partners

X_4 is company's position in supply chain

X_5 is size of company

The quality of partnership in this model was calculated as a sum of values for all of its core components. Profit represents the financial result of company's business operations for given year. We also examined whether the number of company's strategic partners in supply chain

has any influence on partnership quality. Company's position in its supply chain and its size were evaluated according to the scales provided in Tab.1. Partnership duration is a value that represents the average number of years the partners were doing business together.

The model was analyzed separately for values in year 2006 and in 2016; therefore, the results enable comparisons. Our findings indicate that there is a significant dependence between partnership quality and partners' business activities. Significant changes can be observed during the examined time period as a result of increased pressures from global environment. The results indicate that the relationship between partnership quality and company's profit exists; however, it is not yet very strong. This was the case of both examined years, no significant changes were observed as a result of globalization. Indirect medium dependence can be observed between partnership quality and number of strategic partners. Furthermore, this relationship became more significant during the examined period. Nowadays, we can conclude that companies have fewer partners, but they focus more on their quality. We also found out that the there is no significant dependence between partnership quality and neither company's position in its supply chain nor company's size. However, the latest proved that the situation may be changing. In 2006 there was basically no significant dependence between these two factors. In 2016 this relationship was getting stronger. The dependence can be classified as weak indirect one. Similar trend can be observed between partnership quality and its duration. In 2006 this dependence was a weak direct one; however, in 2016 it became much stronger and can currently be classified as medium.

4. Conclusion

The aim of this paper was to identify the impact of globalization on selected components of partnership quality in service supply chains in Slovak republic. The difference of 10 years provided an opportunity to examine how globalization changed the role of partners in their corresponding service supply chains and how it affected various aspects of partnership quality. Our findings proved that this topic deserves appropriate attention by researches. The influence of various factors including globalization changed significantly the position of supply chain management in management of companies and proved its importance. This trend will only continue and remain challenging for companies to adapt to. Nowadays, even company's profit is affected by how well the companies in their corresponding supply chains can work together in creation of synergic effect for all those involved. Creation of strategic partnership was an obvious next step, which has proven a successful one in terms of supply chain performance.

The main limiting factor of this research can be the perception of definition of partnership. The question of what the partner really is can be answered differently by various companies. For the needs of our research we agreed with current literature that states that partners are not all members of supply chain, but only those that have closer relationships. Their common activities have a longer duration and are oriented on performance of all its members.

Our results discovered that there is a significant dependence between various components of partnership quality and partners' business activities. Significant changes can be observed during the examined decade as a result of increased pressures from global environment. This research provides evidence that reliability of partner has become the most significant component of partnership quality, whereas a decade ago it was honesty of partner. Global competition pressured companies to seek partners that fulfil their responsibility correctly and on time. This has become the essential component of partnerships throughout service supply

chains. Therefore, our results discovered factors that have significant affect on partnership quality and how their affects changed over the last decade. Our results provide information about service supply chains in Slovakia. The obvious extension of this research would be the examination of these parameters in other industries. Despite of its limitation empirical research provides firsthand information from companies which are highly relevant and can provide a basis for achieving valuable results on a larger scale and thus provide fast and target-oriented recommendations for managers to design their supply chain in accordance with both system and process approaches to achieve desirable results.

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REPORTING UNIVERSITY SOCIAL RESPONSIBILITY AND UNIVERSITY GLOBAL COMPETITIVENESS

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Abstract. In the situation of global student and academic staff movement, of the development of on-line curricula, competition among the higher education establishments becomes fiercer. One of the instruments to raise the competitiveness is the university social responsibility reporting. The current research is based on the Othman-Pukka methodology (measurement of the university social performance), adapting it to the specific research needs. The research sample consists of annual reports of five same-year Business Administration study directions. The aim of the current paper is to analyse annual reports to establish how these reports reflect social engagement of the universities and enhance their competitiveness. The research method employed was qualitative deductive content analysis of the annual reports the university. It was concluded that the university employed a strategy of using social responsibility platform as a part of its response to the ever-changing demands and pressures, although there was some lack of public on-line reporting accessible to students to be. The current project consists of three stages. The first stage - identification and listing the statements of social responsibility activities in the annual reports. These activities then were coded according to J. Puukka's classification of social performance indicators in following way: activities for promotion of well-being (WEL), know-how (KNH), ownership of staff and students (OWN), or community involvement (COM). The second stage – a qualitative content analysis of annual reports. The third stage involves working out proposals for the social responsibility reporting.

Keywords: university social responsibility; triple bottom line of sustainability; globalization; competitiveness of higher education institutions; social responsibility reporting

JEL Classification: M 14, M 15, M 31

1. Introduction

Higher education is being shaped by globalization and contributing to it. Globalization creates new competitive and collaborative environment – mobility of students and staff, cross-border educational and joint programs, n double and triple diplomas, technological development that creates such phenomenon as "internationalization at home" (possibility to enter studies in the university abroad while staying at home. (Roga et.al, 2015; Vevere, 2016, A) H. P. Hertig (2016) has summarized recent development in the field of higher education within context of globalization in the following way: (1) globalization has opened up tertiary education for the countries that had only limited to it in the past; (2) networking and cross-linking; (3) demand for knowledge-intensive economics and high level competition between universities; (4) interconnectedness create challenges and problems, that cannot be solves on

the national level alone; (5) advancement of new key players; (6) English as lingua franca; (7) demand for research universities; (8) new forms of global teaching. In the global society universities compete with each other, still the current competition is different from the one in previous decades – it is global, rather than regional, it is focused on economic benefits, rather than quality enhancement itself and, finally, universities are more and more concerned about their global ranking status. (Olcay & Bulu, 2017) This brings forth the question of creating the competitive strategy. The competitive strategy concerns how to create a competitive advantage in the field the organization competes. (Dakowska, 2017) Thus, the competitive advantage is a set of unique features of a company (here the university) that are perceived by the target audience as significant and superior to their competitors. (Yeravdekar & Tiwari, 2014; Patwary et.al, 2012) For the contemporary universities it is important to adapt to the new competitive landscapes, shaped by globalization and factors mentioned above. They have to use new strategies in the field of human resources, cost reductions, research, and partnerships with other companies and other universities. According to T. Sriwidadi and others (2016), the competitive advantage in the higher education is a tri-partite phenomenon: the basic competitive advantage (BCA) – offer and performance, the revealed competitive advantage (RCA) that is represented by a market share and the sustainable competitive advantage (SCA) that consists of unique performance and features of the university.

M. Porter and M. Kramer have discussed the impact of corporate social responsibility on companies' competitiveness among others in their article "The Competitive Advantage of Corporate Philanthropy." (2006) In their opinion, corporations can use their charitable efforts to improve their competitive context – the quality of the business environment in the location or locations where they operate. According to them, the company's competitive context consists of four interrelated elements: factor conditions or the available inputs of production; demand conditions; the context for strategy and rivalry; and related and supporting industries. Analysis of these factors can identify areas where economic and social values overlap and possibilities for increasing business competitiveness in a more context-focused way. L. Zhang and others (2017) bring forth the similar problem. The authors find positive correlation between corporate social responsibility and microeconomic competitiveness that leads to better economic performance. Since today the universities have become significant market players, it is necessary to stress connection between the University Social Responsibility (USR) and competitiveness. J. Reiser (2007) defines the USR as a policy of ethical quality of the performance of the university community (students, faculty and administrative employees) via the responsible management of the educational, cognitive, labour and environmental impacts produced by the university, in an interactive dialogue with society to promote a sustainable human development. Overall, the USR can be perceived as a philosophy of a university as an ethical approach to develop and engage with the local and global community in order to sustain the social, ecological, environmental, technical, and economic development. (Jorge & Pena, 2017) Reporting the USR has become a significant issue in raising university competitiveness, since reports have become a valuable source of information for various stakeholders. Current reports cover a wide range of topics, including social issues, philanthropy, health, sustainability and environmental issues. (Lim & Greenwood, 2017; Global Reporting Initiative, 2016; Elliot et. al, 2017)

2. Methods

2.1. Research Design

The research method of the current study is a qualitative content analysis. This method was chosen because the object of analysis consists of five annual reports, that is, the mass of textual material. Qualitative content analysis is defined as an approach of empirical controlled analysis of texts within context of their communication, following content analytical rules. Procedures of the qualitative content analysis involves two category applications – the inductive and the deductive ones. If the first approach is related to developing of categories on the basis of the material itself, as near as possible to it, then the deductive strategy works with prior formulated, theoretically derived aspects of analysis, bringing them in connection with the text. For the purpose of the current study, the authors have chosen the deductive category application. As theoretical background for category development, the authors have used the conception of the triple bottom line of sustainability in higher education institution, proposed by J. Puukka. According to him, the triple bottom line structure (economic performance, environmental performance and social performance) is applicable also to higher education institutions due to three reasons: firstly, higher education institutions have considerable direct and indirect impacts on the local and regional economies; secondly, the social responsibility of universities refers to wellbeing of staff and students, and good relations with stakeholders; thirdly, higher education institutions are both consumers of non-renewable energy and sources of technological and organizational expertise to tackle these challenges. (Puukka, 2008) Our interest lies precisely with the social performance aspect. The practical application of the ripple bottom line of sustainability conception can be found in the empirical research carried out by R. Othman and R. Othman (2014). The purpose of their study was to examine private and public universities' approach to social responsibilities via the longitudinal research. The authors concluded that the legal status of the university (private/public) has an impact on the strategies these universities choose to respond to the economic and societal challenges. In other words, the more conservative public university directed its social performance activities inwards (directed to the existing staff and students), rather than outwards, whereas the private university employed more flexible strategy and used its communication platforms to involve local and international community and stakeholders more than the public university. Focus of the current study is to analysis of the annual reports to establish how these reports reflect the social engagement of the universities and how they enhance their competitiveness. Therefore, the sample consists of the same-year annual reports of Business Administration study direction of five Latvian universities (2015/2016). This study represents the second stage of the three-stage research project. The first stage consisted of working out the theoretical and methodological background, the conceptual framework and the system of indicators for the next step (Vevere, 2016, B) – the empirical phase. The third stage will consist of application of the empirical data to designing the online platform for university social responsibility reporting, called "University Social Responsibility Reporting Initiative". The authors of this study have put forward two research questions:

1. What place in the universities' annual reports is allocated to social performance activities?
2. Do social performance indicators in reports enhance competitiveness of the universities/study directions?

2.2. Sampling

Our sample consists of five Latvian universities, coded as A, B, C, D, E. Since our interest is a rather methodological one (i.e., to investigate the social responsibility/social performance practices), their size and legal status (public or private) are not taken into account. Still, in order to accomplish comparative analysis, we have chosen one particular study direction – the one of Business Administration – that is common for all five higher education establishments. There are two main provisions: first, the program has to be officially accredited by the Quality Agency for Higher Education (QAHE) of Latvia; second, the annual reports of the study direction have to be published online on the university homepage. Annual reports and Corporate Social Responsibility reports have been the primary tool in analysing the social performance reporting as they accessible to researchers and are published on a regular basis. The annual report is a mass medium of communication, as well as demonstration of social accountability to the public. There are well-developed guidelines in the Social Responsibility Reporting. (Global Reporting Initiative, 2016; Lungu et.al, 2011) bonumber of BA students 289).

2.3. Data processing

The annual reports of all five study directions were screened and examined to identify statements relevant to social performance information. The social performance indicators, according to Pukka-Othman university social responsibility reporting methodology and the United Nations Guidelines (Puukka, 2008; Othman & Othman, 2014; United Nations, 2008), are the following: promotion of wellbeing, promotion of ownership, promotion of know-how, community involvement. Two coders were involved in analysing the data. The first coder identified and listed the statements of CSR activities in the annual reports; the these activities were coded as activities of promotion of wellbeing (WEL), know-how (KNH), ownership of staff and students (OWN) and community involvement (COM) categories for each university. Then the levels of coverage (the number of references) for each category for all five universities and their means were calculated and conclusions were drawn.

3. Results and Discussion

3.1. Promotion of wellbeing

The fact that the arithmetic mean of the coverage of this particular indicator is the highest among others, namely, 2,41% (compare to know-how - 0,80%, ownership - 1,32% and community involvement - 1,01%) demonstrates that universities' social activities are directed mostly inward – to the existing students and staff members (see table 1). Although from the viewpoint of the internal corporate image building this could be the right decision (building the corporate spirit first), at the same time this also means that probably there is not enough attention paid to reaching other significant stakeholders – investors, prospective students both nationally and internationally and government. The activities within this category include the following ones: development of living (student hotels), learning and teaching environment (mentioned by all universities) and material technical basis - possibility of e-studies, availability of databases (the university B even has developed the so-called blended learning conception that presupposes combination of different forms of learning and the massive use of IT technologies. Further development of the e-learning and blended learning programs, in our opinion, could significantly raise the competitiveness of these institutions, because possibility to study in Latvia while being abroad opens up the way to the university internationalization.

Table 1. Promotion of wellbeing

University	References	Coverage (%)
A	19	1,75
B	11	4,93
C	2	1,14
D	4	0,86
E	7	3,38
Mean	8,6	2,41

Source: Authors' compilation

3.2. Promotion of know-how

Perhaps the most intriguing situation is in the field of reporting of the know-how activities by the universities, the range of references is between 0 (for the university E, that is the only public university researched here) and 21 (the university A). The highest coverage of this matter though (2,15%) is in the annual report of the university B (see table 2). The different length of the report could explain this seeming contradiction. This category covers such activities as professional development of the staff, working out strategical directions in learning and science (particular directions of research), involvement of students in the research, organizing methodological seminars, etc.

Table 2. Promotion of know-how

University	References	Coverage (%)
A	21	1,66
B	11	2,15
C	1	0,11
D	1	0,09
E	0	0,00
Mean	6,8	0,80

Source: Authors' compilation

Reviewing results depicted in the table, we can clearly see that the coverage of the promotion of know-how is the lowest among all categories (indicators) and it is virtually non-existent in the case of the public university. What does it mean? In our opinion, it signalizes about two things – first, except for the universities A and B, the rest of HEI do not regard this aspect to be critical in respect to their competitiveness, this stands in sharp contradiction to course towards the Knowledge University; second – zero reference in case of the public university shows that the private and the public universities respond differently to contemporary market challenges.

3.3. Ownership of staff and students

The indicator of promotion of the staff and student ownership comprises such social performance aspects as introduction and implementation of quality control system, internal audit of quality, development of good governance principles, cooperation between staff, administration and students (regular student surveys regarding study course and teaching quality), etc. As we can see in the table 3, the highest coverage of this category is in the annual report by the public university (E), while the lowest- in the private university (C) with the second largest number of students in the BA program. We believe that the latter results is due to non-inclusion of significant facts into report, rather than the lack of activities; still it leaves a negative impact on the competitiveness of the university.

Table 3. Ownership of staff and students

Indicator	References	Coverage (%)
A	14	1,30
B	10	2,33
C	1	0,30
D	2	0,61
E	4	2,04
Mean	6,2	1,32

Source: Authors' compilation

The coverage of this indicator confirms the previous conclusion that the social activities are directed mostly inwards.

3.4. Community involvement

The indicator of community involvement covers such aspects in the annual reports of five universities in question such as involvement of industry and potential employers in evaluation of the study programs and in the study process (as guest lecturers); cooperation with professional organizations; cooperation with secondary schools and professional schools with aim to attract prospective students. Two schools (B and C) offer professional consultations to companies and government organizations (e.g., academic staff members participate as experts in the consultative boards of various organizations).

Table 4. Community involvement

University	References	Coverage (%)
A	19	1,56
B	7	2,03
C	9	1,42
D	5	0,13
E	7	1,01
Mean	9,4	1,23

Source: Authors' compilation

The coverage of this indicator varies between 0,13% and 2,03%. It has to be noted that this aspects – community involvement – is one of the most (if not the most) significant social performance indicators that ensures the competitive advantage of the higher education institution. Since it is rather low in comparison to student and staff well-being and ownership, we can conclude that the universities until yet do not fully appreciate the role of going public and letting the local and international community to know about their involvement in communal activities and social orientation. For example, none of the reports contains information about charity work and social activism. In other words, there is not enough visibility in order to be noticed in the overcrowded market place of higher education. This is the reason why the authors of the current study stress the importance of social responsibility reporting and creating the online reporting platform that would be the next logical step of this project.

4. Conclusion

The aim of the current study was to research the annual reports of Business Administration study directions of the Latvian universities in order to see how they reflect universities' social performance that, according to the theoretical literature can significantly raise competitiveness of them on the global stage. We put forward two research questions: the first concerned the coverage of the social performance indicators in the annual reports, while the second question

was if the social performance indicators mentioned in the reports enhance the competitiveness. After performing the qualitative deductive content analysis, we concluded that the overall coverage of the social activities does not 0,8% and 2,41%. Besides that the most of the activities were inward directed, i.e. toward the existing staff and students. The least mentioned category in all reports was the one of the promotion of know-how; this means that the universities do not regard this aspect as important enough for their development. It has to be mentioned also that the aspect of internationalization was reflected only in one of the reports. This lead to the main conclusion: the universities in question are not fully aware of the competitive advantage they would gain nationally and internationally by reporting their social responsibility.

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OPTIMIZATION OF PRODUCTION IN TERMS OF PRODUCTION BATCH SIZE IN A GLOBAL ASPECT

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Abstract. In today's global world, where are global economies interconnected and dependent, in the rise of production and circulation, logistics plays a key role. Logistics can ensure to enterprise the high quality of its goods and services, and also achieve significant cost savings to gain a competitive advantage. In the following article, we build on the knowledge we have gained through a detailed analysis of company logistics, with an emphasis on production logistics and production batch in the manufacturing plant, which was established in Slovakia. The company has incorporated its portfolio among the world's leading suppliers of standard and special rolling bearings for storage in various industrial applications. The analysis revealed the problem of too small monthly production batches of some bearings, which gave rise to excessive costs of machine typing. After detailed analysis, we calculated the costs of typing the machines that the enterprise spends at the current production scale. On the basis of the conclusions of the analysis, we have suggested optimization of the production process following the size of the production batch, with an emphasis on reducing the relevant costs of machine typing. The suggestion to optimize production batches consisted of their merging. We have quantified the costs of machine typing and the capacity losses that will be incurred after merging production batches. We compared the figures of current and suggested status and quantified the amount of savings the enterprise could achieve. The benefits are quantified by comparing the current costs of machine typing and costs after optimization.

Keywords: globalization, company logistics, production logistics, production planning, production batch

JEL Classification: C61, D24, E23, L62

1. Introduction

The size of production batches is one of the most important but also the biggest problems in production planning. The decision about their size leads to the question of when and how many products produce to minimize the cost of machine typing, storage and production. Correct decisions in this area directly affect the performance and productivity of the system that condition the business's ability to compete and its competitiveness on the market. (Karimi et al., 2003)

In this article, we will deal with a mechanical engineering company that produces a large number of roller bearings for different industries. There are large differences in annual

demand between the different types. Therefore, when the annual order is divided into monthly production batches, some of types have a very small volume. The company has to decide if producing small monthly batches is economical considering the costs of machine typing and lost capacity.

The aim of the article is to suggest optimization of production process according to the size of the production batches based on a thorough analysis of the production process of the products in terms, with the emphasis on reducing the relevant costs. Optimization results in a comprehensive appraisal of the suggestion and specification of its benefits for the enterprise.

In the second chapter, entitled Theoretical basis of the solved problem, we focused on enterprise logistics and its individual parts and production batches.

The third chapter is focused on the results of the analysis of the production batches we have done in the engineering company. The greatest emphasis was placed on production logistics, where we thoroughly analysed the entire production process and the size of the production batches of the selected group of bearings. We have quantified actual losses that an enterprise expends at the current production batches.

The fourth chapter contains the suggestion to optimize the production batches that consist of merging them. We have calculated the costs of typing machines and the capacity losses that an enterprise would have if it merged production batches. We compared the figures of current and suggested status and quantified the amount of savings the company was able to achieve.

2. Theoretical basis of the solved problem

The importance of logistics is becoming more and more important with the increasing globalization. Companies are exposed to a strong competitive pressure, and logistics in this situation has a strategic position. Helps companies improve their customer service, which has been a priority since the early nineties (Machan, 2016; Friedman et al., 2016). It allows cost savings and higher profits. The effectiveness of this science discipline increases with the development of information technology. System approach is absolutely necessary for its success. Understanding interrelationships plays a key role in increasing the efficiency of the system as a whole. (Drahotský & Řezníček, 2003)

2.1 Production logistics as a part of company logistics

Company logistics is a subset of micro-logistics that deals with logistics chains within an industrial plant or between plants within a single enterprise. The subject of the survey is the pre-production process (purchase of material from the suppliers), its own production process (handling equipment, warehouses, transport equipment, information and decision-making system) and post-production processes (sales and deliveries of products to customers). (Larson, 1999)

The basis of company logistics is the material flow, which consists mainly of movement of auxiliary and consumable materials, production aids, workpieces, rejects, means of transport, waste. (Augiseau & Barles, 2017)

The material flow is understood as the organized movement of all the objects that are necessary for the realization of the production process in the production system and between the elements of the production system and its surroundings. (Chompu-inwai et al., 2015)

Company logistics to play its primary role in optimizing the movement of material in an enterprise, therefore it is necessary to combine the partial subsystems into an integrated system that coordinates and manages the material and relevant information flow. Company logistics consists of the following entities: purchasing and supply logistics, production logistics and distribution logistics. (Khabbazi et al., 2016)

Production logistics is basically a subset of the complex logistics of supply-chain relationships or chains. Its complexity, range of impact is directly proportional to the complexity of the production process. (Zülch, M. & Zülch, G., 2017)

2.2 Production batches

One of the production norms, which significantly affects production costs, is the size of the production batch. It also influences the flexibility of production (competitiveness), the length of the production run time, the amount of inventory of the finished production, the use of production facilities, and so on. Workers in the planning departments of the enterprise are trying to determine the size of the production batch, which would minimize production costs. (Gregor et al., 2000)

Domestic or foreign authors incline to the large production batches. For example, Amorim and his team emphasize their importance in reducing integrated production and distribution costs. The solution of large production batches can bring better performance to the company by reducing the number of machine settings and thus setting costs, reducing the number of vehicles and the total distance travelled, because larger batches will be distributed less often. (2013)

Shahvari and Logendran in their research look at a small production batch as well as a dosing and planning problem. In the literature, we will meet the concept of "batch scheduling (BS)", a simple batch planning. Batch planning is defined as dividing the group into multiple batches with respect to the required lower limit of batch size. (2017)

Optimal batch size brings many benefits to the enterprise. It simplifies the scheduling, enhances the quality, reduces inventories, and improves the production process continuously with minimized system costs. On account of this, determining optimal batch size is the area of interest for the researchers with the objective of reducing inventories and related system costs. (Tayyab & Sarkar, 2016)

Determining optimal batch sizes in a production system has been a primary focus in the manufacturing sector. From the volume of research, it is well known that the batch size of a manufacturing process is significantly affected by several cost factors such as setup cost, order cost, and defective cost. (Shin et al., 2017)

Taking into account the different approaches to determining the size of the production batch, we have to remind that simulation should be used to assess the right choice of batch size. It allows us to determine the behavior of the production system as response to a specific production batch size. (Dehghanbaghi, 2017)

3. Analysis of production batches of the selected group of bearings

The issue of production batches occurs in capacity conversions, especially in relation to time for machine typing. The classical relation to optimization of production, which was already formulated by Andler in 1929, has been used in different variations until today, and

seeks to find a compromise between costs of storing and bridging capital, which increase with rising batches and costs of typing, which decrease with rising batches. We will focus on reducing costs of machine typing as part of our optimization. (Porporato, 2016)

The analysis of production batches for individual months is based on the "budget" for 2017, which was firmly accepted by the company. "Budget" is derived from a specific customer request (in our case METELLI – Italian customer). Sizes of production batches are arranged according to the types of bearings in individual months so that the required annual order is fulfilled for the whole year. The production batches are not the same in each month, such a division was performed by the sales department empirically and then it was shifted to production. It is already responsible for planning the individual inputs that are needed in specific periods for the production of a given number of bearings.

Table 3: Production batches for the first half of 2017 in pieces

Production batches per months (pcs) / Type of bearing	January 2017	February 2017	March 2017	April 2017	May 2017	June 2017
BR863G-2TIH	37 600	37 900	52 500	48 400	45 500	52 600
BR603M-1TIH	13 300	9 300	15 200	18 150	21 000	15 200
BK249M-1TIH	32 000	19 700	42 600	32 000	30 200	34 000
BK2057M-1TIH	14 000	10 000	20 700	16 800	17 800	19 800
BK2233M-2TIH	25 200	18 800	27 700	27 300	29 000	29 500
BK512M-1TIH	11 800	9 800	11 800	11 700	13 700	11 700
BK608M-1TIA	11 800	11 400	13 500	14 600	9 400	18 500
BK2159M-2TIH	12 000	8 400	13 000	13 800	14 000	12 700
BK621M-2TIH	8 400	12 000	9 500	11 200	9 500	8 400
BR2043G-2TIH	4 700	4 200	5 100	5 600	8 000	7 900
BK360-BM1TIH	10 800	9 800	12 800	13 500	12 700	11 700
BK279M-1TIH	7 700	6 600	11 300	9 400	12 300	9 400
BR2031M-1TIH	7 000	4 000	5 500	7 500	7 000	5 500
BR675M-2TIH	4 700	5 100	6 000	5 600	5 800	6 200
BR980G-2TIH	1 500	2 800	1 350	2 500	2 500	1 200
BR173.1M-1TIH	5 300	3 800	5 200	5 000	5 400	5 100
BR076M-1TIH	2 000	2 500	3 500	2 500	3 000	2 000
BR2084-1TIH	2 500	2 700	3 500	2 100	2 850	3 000
BK352-BM1TIH	7 500	6 100	7 800	8 000	8 500	6 800
BR2082-2TIH	3 200	2 000	3 100	3 000	2 700	2 500
BR220M-1TIH	2 200	1 900	2 300	2 100	2 300	2 400
BR045M-1TIH	2 800	2 600	2 800	2 900	2 800	2 900
BR2128G-2TIH	1 700	1 800	1 700	1 600	1 700	1 700
BR082M-1TIH	9 800	7 500	9 900	10 500	12 700	10 300
BR192.1M-2TIH	1 900	3 300	2 800	3 300	1 800	3 300
Summary	**241 400**	**204 000**	**291 150**	**279 050**	**282 150**	**284 300**

Source: internal materials of the company

Table 4: Production batches for the second half of 2017 in pieces

Production batches per months (pcs) / Type	July 2017	August 2017	September 2017	October 2017	November 2017	December 2017
BR863G-2TIH	45 500	18 800	46 000	45 100	45 200	42 400
BR603M-1TIH	15 300	9 500	17 100	15 200	20 900	12 400
BK249M-1TIH	28 500	14 100	36 000	31 100	39 150	31 500
BK2057M-1TIH	14 700	10 000	19 000	20 700	17 900	16 000
BK2233M-2TIH	19 000	18 600	31 200	23 900	28 800	23 600
BK512M-1TIH	11 700	7 000	11 800	11 800	11 800	11 700
BK608M-1TIA	13 200	7 500	19 500	13 200	14 100	13 200
BK2159M-2TIH	12 400	6 900	13 000	14 000	14 500	11 700
BK621M-2TIH	6 500	7 000	8 000	10 000	7 500	7 500
BR2043G-2TIH	7 600	5 800	9 400	7 500	7 000	4 300
BK360-BMITIH	12 200	7 500	13 200	12 700	12 700	11 500
BK279M-1TIH	9 400	4 700	8 900	9 400	9 400	7 000
BR2031M-1TIH	5 000	4 000	5 000	7 500	6 500	6 000
BR675M-2TIH	5 600	4 300	6 200	5 600	5 800	4 700
BR980G-2TIH	1 350	1 400	2 200	2 100	1 450	1 500
BR173.1M-1TIH	6 000	3 300	5 500	5 600	5 500	4 500
BR076M-1TIH	3 000	2 500	2 500	2 500	3 000	2 500
BR2084-1TIH	3 000	2 100	3 000	2 500	2 000	3 200
BK352-BMITIH	7 500	3 800	8 000	8 500	8 900	7 000
BR2082-2TIH	3 300	2 000	3 000	2 700	3 500	3 200
BR220M-1TIH	2 200	1 400	2 500	2 300	2 300	1 800
BR045M-1TIH	2 800	1 400	3 300	3 000	3 100	2 700
BR2128G-2TIH	1 800	2 000	1 900	1 900	1 800	1 500
BR082M-1TIH	9 800	7 000	11 300	9 000	10 400	10 000
BR192.1M-2TIH	3 700	2 400	2 800	2 300	2 800	2 800
Summary	**251 050**	**155 000**	**290 300**	**270 100**	**286 000**	**244 200**

Source: internal materials of the company

Based on the above tables, we can see that not all bearings are produced in large batches because annual orders are not in such volumes. We just will focus on smaller volumes under 5000 pieces of bearings, which will become the subject of optimization. We think it is unnecessary to move with larger batches because there would be insufficient capacity. The "signal number" was set to 5000 units because the shaft production starts with the SAY 8/32 machine, whose output per shift is just about 5000 units. In the calculations, we take into account existing capacities of machines. Workspace capacity (on a particular operation) depends on the following factors: machine performance, machine count, number of shifts per day, number of days of machine operation per month, and machine usability. We get it after multiplying all of these factors.

The total time for machine typing is: the number of prefixes per month * the length of time needed to type one machine in man-hours. The score is also in man-hours.

Every machine has to be typed 25 times per month, because we have so many types of bearings. It is known, how many man-hours are needed to type the machine. While the machine is being set up, the costs of individual employees (downtime) and adjusters are incurred. Costs of individual employees (manufacturing operators) are represented by the hourly wage. The direct personal costs per one typing are the product of the length of one

typing in man-hours, the direct unit wage and the coefficient of statutory levies. The coefficient of statutory levies is for the operators, even for the adjusters 1.4. The total costs of adjustment are then calculated as the product of the month's set-up and direct personal costs per one order. We do not take into account the number of machines in this calculation, because there is only one machine in each type of bearing. Capacity loss is the time in man-hours during which the company was able to produce, but it cannot, because the machine is currently being set by manufacturing operator or adjuster.

In the following table, we report the total monthly and annual costs in € per both of employees and the loss of capacity in man-hours per operator. We count capacity loss only per one type of employee, because company loses capacity only once.

Table 5: Calculation of monthly and annual costs per employee

Type of employee	Monthly costs (€)	Annual costs (€)	Capacity loss monthly (man-hours)	Capacity loss annual (man-hours)
Manufacturing operator	3607,98	43295,70	640,00	7680,00
Adjuster	2900,80	34809,60	X	X
Summary	**6508,78**	**78105,30**	**640,00**	**7680,00**

Source: Author

Based on the amount of the costs, we can say that they are large sums. Analysis of production batches gave us an area for optimizing and reducing the cost of typing, which will be discussed in the next chapter.

4. Suggestions and recommendations

We decided to merge production batches by quarters (3 months) so that instead of eight production batches we will produce only 3, respectively in the last month of the quarter only 2. We will achieve savings from the original number 25 of produced batches to 20, respectively 19. From the original table of all 25 types of bearings we chose 8, which are not higher than 5000 pieces.

Production batches were merged in the following way. At first, we selected three types of bearings (or 2), we merged them into one number and then planned to produce them in the first month of that quarter. The next threesome would be produced in the second month in the quarter, etc. The final sum per year is unchanged. The technique is well visible in the following tables.

Table 6: Merged production batches for the first half of 2017

Production batches per months (pcs) / Type of bearing	January 2017	February 2017	March 2017	April 2017	May 2017	June 2017
BR2084-1TIH	8 700			7 950		
BR220M-1TIH	6 400			6 800		
BR045M-1TIH	8 200			8 600		
BR2128G-2TIH		5 200			5 000	
BR2082-2TIH		8 300			8 200	
BR192.1M-2TIH		8 000			8 400	
BR045M-1TIH			8 200			8 600
BR2128G-2TIH			5 200			5 000

Source: Author

Table 7: Merged production batches for the second half of 2017

Production batches per months (pcs) / Type	July 2017	August 2017	September 2017	October 2017	November 2017	December 2017
BR2084-1TIH	8 100			7 700		
BR220M-1TIH	6 100			6 400		
BR045M-1TIH	7 500			8 800		
BR2128G-2TIH		5 700			5 200	
BR2082-2TIH		8 300			9 400	
BR192.1M-2TIH		8 900			7 900	
BR045M-1TIH			7 500			8 800
BR2128G-2TIH			5 700			5 200

Source: Author

In each month, due to the merging of the production batches, the typing of the machine fell. In March, June, September and December, the number of orders was even 19. We are now counting the individual setup costs for both the operator and the editors at 20 rankings in 8 months. After merging production batches, the annual costs of both employees were € 61,442.84. The total lost capacity for the machine operator was 6041,60 man-hours.

5. Conclusion

After comparing costs before and after optimization, we found that if the company merged production batches, it would save up to € 16,662.46 per year. Capacity losses decreased by 1639 man-hours per year. In this case, the company could produce 28 097 units a year more. If we consider the average price of bearing 2,2 €/pc, the company´s sales would be higher by 61 813,71 €.

Table 8: Comparison of costs and capacity losses before and after merging of production batches

Original costs before optimization (€)	Costs after merging the production batches (€)	Saving (€)	Original capacity losses (man-hours)	Capacity losses after merging the production batches	Saving (man-hours)
78105,30	61442,84	16662,46	7680,00	6041,00	1639,00

Source: Author

We recommend the company not to accept orders below 5,000 units from its customers, as it increases the costs of machine typing and capacity losses. Production in small batches is inefficient.

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PRODUCTION COSTS MODELLING VIA ARTIFICIAL INTELLIGENCE

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Abstract. The main aim of today´s enterprises finding themselves in a phase of growth and a phase of lifecycle maturity is creating a value for shareholders. That may be expressed in the form of free cash flow to equity (FCFE) or in the form of EVA Equity. Calculating both indicators, we follow the enterprise´s economic profit. For the company´s management to be able to reach the best economic profit possible it has to maximise its revenues and minimise its costs. A key role in each company of today´s globalized world is played especially by production costs. They define the enterprise´s potential, they determine possible limits and its activity. An enterprise, which wants to fulfil its main aim, needs to manage its costs. This contribution sets a goal to create a tool for modelling production costs dependency on the volume of production based on an example of a specific enterprise using artificial neural networks. Individual items of financial statements serve as data – especially balance sheets and profit and loss statements. First of all, it was necessary to determine what cost items related to the company´s manufacturing activity. For the purpose of the analysis costs have been summed up according to individual production costs. Subsequently, using the Statistica software, neural structures (multilayer perceptron networks and neural networks of the basic radial function) which are able to model the company costs developments with the regard to production volume, have been calculated.

Keywords: neural networks, cost model, shareholder value, production factors, revenues

JEL Classification: C15, C45, C53, D24

1. Introduction

Expended production costs of a company influence its economic activities, managerial decision making and ability to innovate in order to save finances where possible. The amount of the costs may have a marked effect on the competitiveness of the company since the production expenditure plays an important role in regard to the price and quality (Kot, 2015). Managers require precise information on economic activities of the company, which needs to be properly organized and checked. The check should focus on responses concerning general inquiries as follows: which costs, where and why they arose and who is responsible for their occurrence. These inquiries track down deep into the history of the company. In order to successfully predict the future costs, both past and future of the company must be taken into account since it offers a good design for (Liang, 2014).

Production costs relate to the costs, which arise either from goods production, or service provision. Production costs include labour costs, raw materials, consumables and overhead costs. Furthermore, also state taxes are included in this category (Parlakay, 2016). Thus, an accurate calculation is vital as costs of the single products need to be calculated. Costs of the

single products constitute total costs of the production process divided by a number of manufactured units.

In order to successfully collect the information about "costs" requirements, not only an accurate identification of the consumption of production factors in managerial accounting is needed, but also employing an effective method for costs calculation must be considered. As a matter of fact, employing the effective method depends not only on the type of production, but also on all the features of the production process. Econometric modelling of production costs focused on identifying the impact of some factors on these costs may be employed by companies as a means of production costs analysis. This modelling enables exploring the effect of the production amount on the costs (Skakic & Glavonjic, 2014). However, there are plenty of methods of costs modelling, one of which are neural networks that help calculate single variants in an effective way with respect to the accurate prediction of the future costs.

Artificial neural networks may be used for regression, classification etc. They are mainly useful for handling massive amounts of data, accuracy of results or simple use of the acquired neural network (Vochozka et al., 2016). All the same, the major disadvantage is the manner of organizing individual models of the artificial neural networks (Rowland & Vrbka, 2016). On the other hand, neural networks have huge advantages over common methods. They are able to analyse complex formula in a quick and accurate way. Moreover, neural networks are flexible in their common use (Santin, 2008). These networks may be used for image solutions, time series, understanding and generating languages etc. (Boguslauskas, 2009). However, a distinct disadvantage is their strict requirement for the accurate information on the formula since a large number of testing observations are needed for organizing such a huge amount of data; the fact of which is rather uncomfortable for a user (Stehel et al., 2016). The second big disadvantage is the optimization procedure of the topology of hidden layers, which is extremely time consuming and complicates the computing process (Hossain, 2017).

An implemented model of neural networks in a company should minimize the production costs of products. Therefore, a detailed model which would allow all possible arrangements and efforts to minimize the costs was developed (Wilimowska & Krzysztoszek, 2013). Neural networks from different sectors may be used for an accurate prediction, the fact of which corresponds with scholarly articles of qualified specialists who efficiently used them for modelling the future costs of a company. Authors such as Attarzadeh & Hock (2011) laid out a conceptual model that includes constructive costs models for improving their accuracy and estimating the costs for the software using artificial neural networks. The laid-out artificial neural network has good generalization and adaptation abilities and may be used and verified by software engineers. Experimental results show that using desirable qualities of the artificial neural networks for algorithmic model of the estimate improves the time accuracy and estimation of the costs while estimated intensities may be very close to the actual effort.

This article focuses on developing an instrument by artificial neural networks for modelling the dependency of production costs on the amount of production in the example of a particular company.

2. Data and methods

The reliable data are represented by items in the statement of financial statements – balance sheet of profits and losses in particular. The provided data always indicate individual quarters, namely from 2006 to 2015. The company (hereinafter Cable, s.r.o), which provided the data, requires for the data to be presented anonymously. Its main activities are the

production of commercial materials. The key customers include mostly small and medium enterprises operating all over the Czech Republic.

At first, it was necessary to indicate costs items related to the production activity of the company. In general, they may be divided into four groups according to the production factors (Wöhe & Kislingerova, 2007): type of work (managerial and disposition), fixed assets and material. Further, the costs are calculated as a dependent variable, while the amount of production represents an independent variable. In regard to the company having a wide range of products, substantial revenues, which determine the amount of products, were suggested as an independent variable. For a comprehensive analysis, the costs were grouped according to the individual production costs. Work (managerial and disposition) – Labour costs, Social security and health insurance costs, Services (cooperation with different companies, i.e. jobs which cannot be performed by the company itself). Material – Consumption of energy and material. Fixed assets – Write-offs of the fixed intangible and tangible assets. Other – Costs interests.

Subsequently, new neural structures (multiple perceptron networks and neural networks of the radial basic function) will be calculated using software Statistica, version 12.0, DELL Company. These neural structures are capable of modelling costs development of the company in regard to the amount of production. Firstly, all the reliable data about the costs development and revenues from the sold products must be pasted into a table of Excel Editor. Subsequently, the table will be imported in Statistica Program, while the first column and line will be left out for detailed descriptions of cases and variables. Afterwards, neural networks of Data mining will be selected. Time lines, regression in particular, will be chosen from the next selection. Other steps are as follows: Automated Neural Networks (ANN) will be dealt with and the input variable will be selected. This variable stands for revenues from the sold products. The output variables represent individually defined costs in the ratio 70:15:15. Its essential aim is to find neural structures and in the training set and to test their value in the two remaining data sets – testing and validation.

The attention will be drawn only to two types of neural networks – multilayer perceptron networks (MLP) and neural networks of radial basic function (RBF). One thousand networks will be trained; first five networks with the best qualities – the highest performance (i.e. the highest value of the correlation coefficient in all three data sets) and the smallest error – will be maintained for the further analysis. MLP will apply from 2 to 50 neurons in the hidden layer, while RFB will deal with 15 to 30 neurons in the hidden layer.

In case of MLP, activation functions for neurons are used in the hidden and output neuron layer: Identity, Logistic function, Hyperbolic tangents, Exponential function, Sinus. The desired result of the applied method will be neural networks from which the best ones will be chosen for modelling the costs with reference to the required revenues of the company.

3. Results

Table 1 suggests a statistical description of the calculated data.

Table 1: Statistical description of the data file

	Reven. from selling prod.	Costs paid for the sold prod.	Reven. from selling own prod. and services	Net material and energy consump.	Services	Labour costs	Social security and health insur. costs	Write-offs of the tangible and intangib. assets	Costs interests
Valid N	39	39	39	39	39	39	39	39	39
Mean	1147,18	952,18	12044,87	8628,95	1398,05	783,44	302,46	192,00	130,54
Geometric Mean	926,19	769,47	10587,53	7808,94		688,87	268,66	165,13	
Harmonic Mean	727,515	613,808	9133,019	7068,290	1097,508	617,115	236,977	147,299	120,572
Median	912,00	743,00	10507,00	7438,00	1056,00	598,00	242,00	140,00	110,00
Mode	Multiple	Multiple	Multiple	Multiple	Multiple	598,0000	Multiple	110,0000	Multiple
Frequency of Mode	1	1	1	1	1	2	2	6	2
Sum	44740,0	37135,0	469750,0	336529,0	54524,0	30554,0	11796,0	7488,0	5091,0
Minimum	129,000	124,000	2217,000	2746,000	-243,000	234,000	80,000	87,000	-48,000
Maximum	2875,00	2415,00	26924,00	19235,00	4708,00	2373,00	612,00	447,00	326,00
Lower Quartile	555,000	460,000	7205,000	5239,000	641,000	522,000	190,000	110,000	88,000
Upper Quartile	1629,00	1327,00	16228,00	11289,00	2062,00	751,00	437,00	255,00	142,00
Variance	578368	404175	36983025	15687901	983187	205888	21807	14288	5311
Std.Dev.	760,505	635,748	6081,367	3960,796	991,558	453,749	147,672	119,534	72,879
Skewness	0,977	1,001	0,746	0,877	1,144	1,747	0,678	1,335	0,769
Kurtosis	-0,246	-0,192	-0,331	0,288	1,728	3,023	-0,687	0,301	1,181

Source: Author

The statistical description includes the calculation of medium values of the input variables. Moreover, the table also shows extreme values, variance, the standard error etc. The number of the data lines, i.e. 39, also makes important information. The input data file was valid and accurate for the required calculation. Based on detailed the calculation, one thousand neural structures were obtained. First five neural structures with the best qualities are shown in the table 2.

Table 2: Maintained neural networks

	Network name	Training perform.	Testing perform.	Validation perform.	Training error	Testing error	Validation error	Training algorithm	Error function	Hidden layer activation	Output activation function
1	RBF 1-8-6	0,662048	0,315152	0,745463	1897211	3508925	3313351	RBFT	Sum quartile	Gauss	Identity
2	RBF 1-7-6	0,656198	0,333828	0,753774	3363809	2331644	6171093	RBFT	Sum quartile	Gauss	Identity
3	RBF 1-8-6	0,509343	0,48355	0,809154	5100801	2419988	6060217	RBFT	Sum quartile	Gauss	Identity
4	RBF 1-8-6	0,629343	0,432099	0,794542	5528647	2816621	6951258	RBFT	Sum quartile	Gauss	Identity
5	RBF 1-10-6	0,708234	0,086176	0,733139	4744969	4261593	6420388	RBFT	Sum quartile	Gauss	Identity

Source: Author

The table suggests that networks of the radial basic function show the best qualities. One input neuron represents revenues from own products. Six neurons in the network output layer represent six types of costs which need to be predicted. All the networks originated by means of training RBFT algorithm. They use identical functions to activate the neural hidden layers,

i.e. neural output layers, Gauss curve in particular. Ideally, a neural network which shows a high performance of the training data set and approximately similar testing performance and validation data set is required. The fifth network, RBF 1-10-6 in particular, offers the best training performance. It shows correlation coefficient almost 0.71 which means a heavy dependence. However, the testing performance of the same network is completely minimal – almost 0.09 which means a total indifference of the variables. The result is interesting mainly for the validation performance to be again relatively high; it reaches more than 0.73 of the value. Nevertheless, as has been said before, a neural network which will show the optimum high performance is looked for; besides, its performance must be typical for training, testing and validation data sets.

The impressive performance is delivered by network no. 3, RBF 1-8-6. The testing performance amounts to more than 0.48, which means a high value in comparison with other networks. Unfortunately, the training performance is relatively low – almost 0.51. Therefore, only networks 1, 2 and 4 are taken into consideration since they show similar qualities. The performance differences of the individual data sets are not essential. For that reason, the networks are subjected to a further detailed examination, of which the comparison of the selected statistical descriptions is the best method. It compares prediction values of the training data set since new artificial neural structures originated in this data set. Moreover, the set contains 70% of the lines of the data file. Further, predictions of the testing data set will be analysed for the reason of their relatively poor results. In case of comparison of predictions does not provide any conclusive arguments and does not help choose a suitable neural network, a residual analysis should be dealt with, using the absolute residuum. The minimum and maximum prediction of the individual output variables are shown in table 3 according to the particular neural networks.

Table 3: Minimum and maximum prediction of variables according to the maintained neural networks – training data set

Neur. netw.	Material and energy consumption		Services		Labour costs		Social security and health insurance costs		Write-offs of the fixed tangible and intangible A		Costs interests	
	Min. pred.	Max. pred.	Min. pred.	Max. pred.	Min. pred.	Max. pred.	Min. pred.	Max. pred.	Min. pred.	Max. pred.	Min. pred.	Max. pred.
1.RBF 1-8-6	1573	15474	310	2701	392	1234	147	422	66	373	41	191
2.RBF 1-7-6	2092	12926	79	2681	430	1335	163	411	79	368	40	226
3.RBF 1-8-6	4486	12357	548	2804	303	939	102	344	112	255	65	162
4.RBF 1-8-6	4294	12247	-243	2840	295	2373	100	505	96	255	-48	169
5.RBF 1-10-6	4272	11738	-254	2668	400	2364	139	504	92	273	-48	320

Source: Author

The table shows a relatively high variance of predicted minimum and maximum values though the ideal variance would be completely minimal. Moreover, services are predicted by networks 4 and 5 in negative values, likewise costs interests, which also show a negative value in networks 4 and 5. Upon a final decision on the validity of individual neural structures, residues offer a great help. In this case, a residuum is represented by the difference between the prediction and the real value. The positive residuum means a higher prediction than the real value. Maximum and minimum residua are suggested in table 4.

Table 4: Minimum and maximum residua of variables according to the maintained neural networks – training data set

Neur. netw.	Material and energy consumption		Services		Labour costs		Social security and health insurance costs		Write-offs of the fixed tangible and intangible A		Costs interests	
	Min. pred.	Max. pred.	Min. pred.	Max. pred.	Min. pred.	Max. pred.	Min. pred.	Max. pred.	Min. pred.	Max. pred.	Min. pred.	Max. pred.
1.RBF 1-8-6	-3871	4201	-744	3228	-609	1165	-236	291	-134	159	-157	197
2.RBF 1-7-6	-5179	7010	-938	3080	-567	1038	-203	268	-126	230	-114	108
3.RBF 1-8-6	-7660	8810	-1202	3289	-678	1459	-233	219	-134	214	-151	213
4.RBF 1-8-6	-6703	9735	-1049	3113	-599	618	-209	245	-123	230	-84	171
5.RBF 1-10-6	-7785	8526	-1121	2826	-687	579	-208	252	-135	212	-62	93

Source: Author

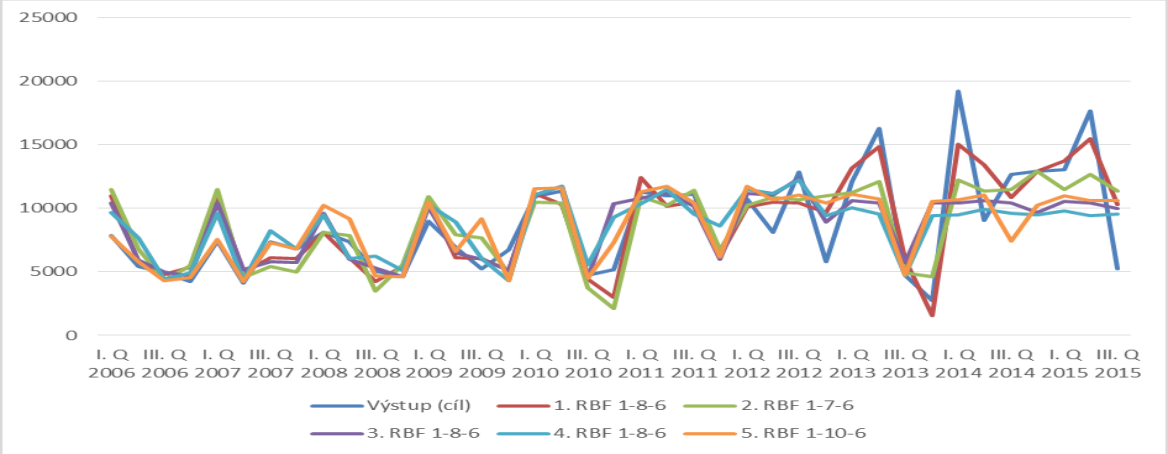
As a matter of fact, the optimum technique would be to examine residua of all data lines and neural networks. However, it exceeds the topic of this article. Therefore, this article deals only with limit values. All residua, i.e. not only the limit ones, reach zero point. Thus, a network of which the limit value reaches zero is looked for. Table no. 4 shows that networks 1 and 2 have the best qualities, i.e. the shape of RBF 1-8-6. Optimum neural structure for the cost prediction of the company taking part in the creation of values is based on the analysis of results of the testing data file.

In the same way, maximal predictions of testing variables according to the maintained neural networks were determined.

Again, networks which predict limit values and show only minimal difference are looked for. Of a considerable interest are networks 1 and 4. For a higher precision, residual limit values were included. Again, residua reaching zero from the both sides of spectrum are looked for. Of a great interest are again networks 1 and 4. Comparing the results of the carried out analyses, network no. 1 in the form of RBF 1-8-6 seems highly suitable for the costs prediction derived from production factors. At the same time, the network shows one of the highest performances and smallest error at maintained structures. Moreover, considering prediction limit values and residual limit values, it shows the best actual results.

Comparing the conclusion with the graphic process of the material and energy costs (Figure 1), a successful conclusion is reached.

Figure 1: Graphic process of material and energy costs



Source: Author

Input quantities are described by the blue curve. The orange curve bears the most similar shape – i.e. network no. 1 RFB 1-8-6.

4. Conclusion

The aim of this article was to suggest a device for modelling the dependence of production costs on the number of production in the example of the particular company using artificial neural networks. One thousand artificial neural networks were generated, five of which structures with the best qualities were maintained. The carried-out analysis indicated that network number one RBF 1-8-6 shows the highest performance and smallest error at a time. The network uses Gauss curve for activating neural hidden layers and identity for activating neural outer layers.

The article proved that costs of the company may be predicted using neural networks even though the particular example did not show optimal values within the testing data set. Despite this fact, a considerable potential for a correct prediction might be seen in the neural networks. However, the detailed calculation bearing the same data should be repeated. As a matter of fact, data might have been divided into individual data sets in a wrong way (as could be seen from the results), or alternatively, based on the sensitivity analysis, final parameters of neural network number one should be separated by hand.

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ANALYSIS OF COMPANIES OPERATING IN MANUFACTURING INDUSTRY IN THE CZECH REPUBLIC USING KOHONEN NETWORKS

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Abstract. Predicting the future development of a company relates to, in the case of most bankruptcy models, the previous data. Globalized models thus look for a certain relation to the existing company´s history and its future development. So far, a number of authors have identified the shortcomings of such bankruptcy models. Models thus do not assume any significant events, which the company may come across, nor do they assume any irrational management decisions. Significant situations may be solved by a company three-level judgement (bankruptcy model, we will adjust it using causal methods). However, not always are we able to project every situation individually into the future result. That is why we will use an intuitive method, projecting the remaining tens, hundreds or thousands of factors influencing the future company development. Nevertheless, irrational decisions of stakeholders are impossible for us to predict. Despite that, creating company clusters according to the compliance of individual descriptive characteristics may become a step towards a method capable of such action. The aim of this contribution is carrying out a cluster analysis of companies operating in manufacturing industry and identification of companies, which have completed their activity, without being pushed by their economic results. Cluster analysis will be carried out with the help of Kohonen networks, i.e. neural structures without a teacher. The result will be clusters with similar properties, and in an ideal case a cluster of companies, which have ended their activity without being pushed by their financial results.

Keywords: bankruptcy models, Kohonen networks, neural networks, cluster analysis, irrational decision

JEL Classification: C32, C38, C45, C53, G33

1. Introduction

Manufacturing industry is related to manufacturing branches dealing with production and processing of goods, and it accompanies either the production of new commodities or adding the value. A significant share of industry in developed countries is represented by the manufacturing industry. Final products may either serve as final goods meant to be sold to customers or as intermediate products used in the production process (Coric et al., 2017).

Differences between manufacturing enterprises and others is sometimes very significant, for instance if differences in the area of production and services are the case. (Piroozfar, 2013). The tangibility of their output is the key difference between service companies and producers (Olibe, 2010). According to Kuruuzum (2010) the difference between enterprises is that service providers create services when requested by the customer. However, processing

enterprises produce store goods with supply level. The other reason mentioned is that providing services is labour-intensive, and cannot be automated easily. Processing enterprises may automate many of their producing processes aiming at decreasing work claims. Lee et al. (2016) claims that service and processing supra-national enterprise providers get different feedback on characteristics, which are specific for a given locality while carrying out straight foreign investments. Many other enterprises use IT to increase product and service value in a greater measure than producers do. IT departments in service branches play a straightforward role in strategic development, as opposed to processing enterprises (Sohal et al., 2001).

Nowadays, there are many methods of analysing enterprises. Some methods are preferred with regard to their versatility, easy use and flexibility. Some are difficult to use and they request skills analysts do not have (Grant, 2016). According to Skalicky & Puchyr (2016) one of the ways to control the full economic health of an enterprise and analyse potential risks resulting from the enterprise´s financial data, is financial analysis. Financial analysis has had a long-term tradition in countries with advanced market economies. In the Czech Republic, the situation is different. Financial analysis started to be used more frequently after 1989, when planned economy turned into market economy. For instance, Vochozka & Dvorakova (2014) indicate methods for enterprise evaluation via benchmarking techniques, which is based on non-financial indicators that should predict the future potential of the enterprise, and evaluate its performance. One of these methods is described by Harry Pollak´s method, focusing on the viability of an enterprise. According to Ismail (2011), the Economic Value Added (EVA) is another indicator able to indicate the enterprise´s success on the market. Its meaning still increases because it is being used when analysing benchmarking and during the practical management of a company as managers´ motivational factor (Stehel & Vochozka, 2016). Further on, we may evaluate an enterprise according to creditworthy and bankruptcy models as well (Alaminos et al., 2016).

Except well-known methods for analysing and evaluating enterprises, there are also neural networks, which may be well applied in enterprise practice. The advantage of these methods is their ability to predict future periods. According to Sanchez & Melin (2015), artificial neural networks may be widely used, they may be used in many areas, and thanks to a growing volume of collected data they gain more popularity. Neural networks have many advantages compared to ordinary methods. They are able to analyse complicated patterns fast and with high accuracy. Neural networks are flexible in their use itself (Santin, 2008). The disadvantage of neural networks is their request for large data about the sample because to create such a huge amount of data it is necessary to carry out a lot of sample observations, which is very uncomfortable for the users (Stehel et al., 2016). The second main disadvantage is the topology optimization process in hidden layers, which is time-consuming, and complicates the computing process (Hossain et al., 2017). Kohonen networks are types of neural networks, which may be used to group a data set into different groups (Rowland & Vrbka, 2016). Data is grouped so that records within the group tend to be mutually similar, and records in different groups are different. Many experimental results prove that Kohonen networks are very efficient for company evaluation (Han & Wang, 2008).

The aim of this contribution is carrying out cluster analysis of enterprises operating in processing industry, and identification of enterprises, which have ended their activity without being pushed by their economic results.

2. Data and methods

For the purposes of this contribution, a data set of 5,000 enterprises operating in processing industry in 2015. The enterprise set will be picked randomly from the Albertina database file. Complete financial statements of these enterprises will be available (all financial data is given in thousands of CZK). For the purposes of the analysis, only some items will be used:

1. Total Assets: This is information on enterprise size, specifically volume of property (long-term, current assets, others).
2. Firm assets: this item characterizes the engagement rate of long-term assets, and it gives an idea of the level of technology used during production. The higher the fixed assets share, the higher the production automation may be assumed.
3. Current assets: they represent the volume of financial resources, receivables, and supplies in a company. Mostly, they are so-called ´working capital´, i.e. property components that change their essence within a time period shorter than one year, and that immediately participate in the main activity of the enterprise.
4. Own sources: reflect the level of enterprise owners´ business risk. It is the amount of funds that may be lost by the owners in case of enterprise bankruptcy.
5. Foreign sources: also capital not bound by company´s share in business management. In fact, it reflects the inner view at the company´s potential success.
6. Performance: characterizes the enterprise´s main activity, i.e. production.
7. Value Added: value added by the enterprise´s main activity to the main input – material.
8. Operating profit: gives information on how the enterprise is successful in its main activity.
9. ROE: return on equity means evaluating the enterprise´s equity, i.e. capital provided by the enterprise owners.
10. Economic result before tax: describes enterprise´s success or failure in the total of its activity.

Thus, value generators are not in question as much as characteristics, which may have an indirect influence on enterprise performance. The file will subsequently be subjected to cluster analysis, specifically via Kohonen networks. Dell Statistica software, version No. 12 will be used for cluster analysis. Data Mining module will be used, and the tool of Neural networks will be used as a specific tool. At this point, neural networks without a teacher will be chosen – Kohonen networks. Data suitable for analysis will be given. In all cases, they are continuous predictors. The file will be divided into three parts: Training data set: makes up 70% of the enterprises in the file. Kohonen network will be built based on this set. The testing data set: made of 15% of enterprises in the original set. Using this data set, we will evaluate the parameters of the created Kohonen network. Validational data set: will also consist of 15% of enterprises out of the set. Using this set, we will also evaluate the obtained Kohonen network, stating whether it is or is not useful.

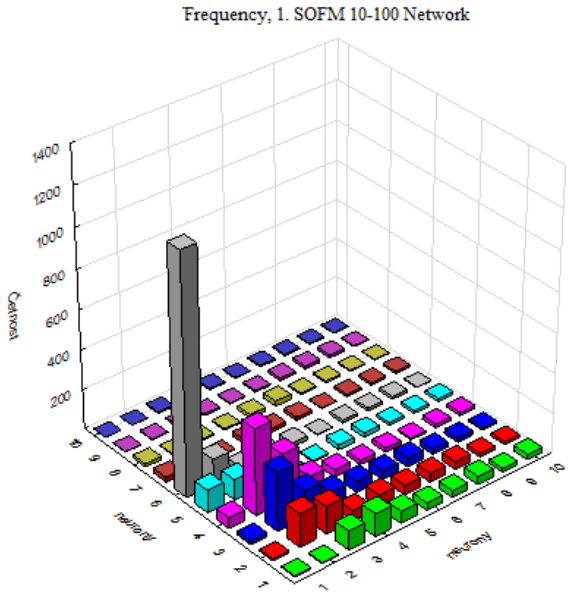
Both topological length and width of Kohonen map will be set to 10. The number of calculation iterations will be set to 1,000. Nevertheless, I want to remind that error level is the important component. If the parameters in Kohonen network are not improved with every other iteration, the training will be ended before iteration No. 1,000 is carried out. In case the network´s parameters are improved even at the 1,000th iteration we must repeat the whole process, and set a higher value of required iterations to be certain that the obtained result is the best possible one.

3. Results

In line with the methodology of this contribution, data has been divided into three sets – training, testing, and validational. Basic descriptive characteristics of the data were created and illustrated. The ideal situation would be if the characteristics of partial data sets were approximately identical. With regard to the fact that enterprises have been divided randomly, this situation is not as real. Even so, however, random data division does not have to harm the result.

Based on the assignment, a calculation of Kohonen network has been carried out. Further on in the text, it is marked as SOFM 10-100. Enterprises have been divided into individual clusters within the topological 10 x 10 grid. The frequency of individual clusters is obvious from the three-dimensional graphics in the Figure No. 1. It is obvious that the greatest number of enterprises in individual check boxes of the topological grid is placed in position 6,1, further in position 4,2. 3,2 and 4,3 follow. In general, we may claim that the greatest number out of 5,000 observed enterprises is in the sector of 1,3;1,5 and 6,1;6,2.

Figure 1: Graphics of frequency of enterprises within the topological grid



Source: Author

The results are visible more clearly in Table 1.

Table 1: The results

	Network 1.SOFM 10-100, Samples: Training, Testing, Validational									
	1	2	3	4	5	6	7	8	9	10
1	6	5	94	116	61	38	34	42	18	27
2	10	169	138	52	65	50	45	41	20	16
3	21	295	139	66	55	45	47	29	24	12
4	55	433	244	67	38	22	21	9	19	18
5	115	103	57	21	7	24	24	14	15	16
6	1201	128	26	30	21	3	14	15	15	3
7	25	41	6	23	19	17	3	13	13	12
8	16	4	7	7	19	27	8	10	6	4

9	3	4	8	9	5	8	13	16	15	5
10	1	1	7	2	6	4	8	7	6	4

Source: Author

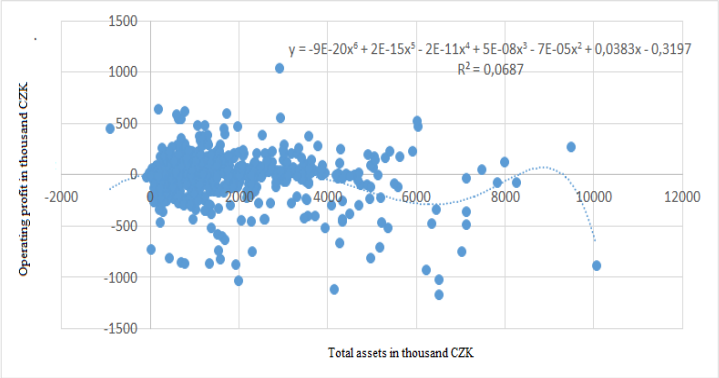
Even the table proves clearly that it is suitable to focus one´s attention further on two clusters, specifically 6,1 and 4,2. They are, numerically, very interesting sets of data representing more than one third of all enterprises in the set. Although the data set is relatively heterogenious, cluster analysis suggests that there are characteristics in which enterprises are similar to each other.

3.1 Cluster 6, 1

Cluster 6,1 of the topological grid has taken hold of 1201 enterprises. Out of partial clusters, this one is the greatest data set. From the perspective of input parameters we may derive these average values: Total Assets: 1098,7 thousand CZK, Fixed Assets: 378,1 thousand CZK, Current Assets: 708,1 thousand CZK, Own Sources: 297,4 thousand CZK, Foreign Sources: 791,4 thousand CZK, Performance: 881,6 thousand CZK, Value Added: 233,9 thousand CZK, Operating Profit: -0,71 thousand CZK, ROE: 0,62 %, Economic Profit before Taxation: -10,7 thousand CZK.

Out of the average values, we may derive a typical enterprise for this enterprise cluster. It is a small enterprise, the operating profit of which is negative. Even so, its existence is not endangered. The level of enterprise automation is relatively low. The enterprise holds a relatively large amount of current assets (probably supplies and receivables). If we are talking about a homogenious data cluster, we may verify the validity of basic logical ties. The relation of total assets and the amount of operating profit (closer in Graphics 2) definitely appears interesting.

Figure 2: Relation of total Assets and Operating Profit Cluster 6,1



Source: Author

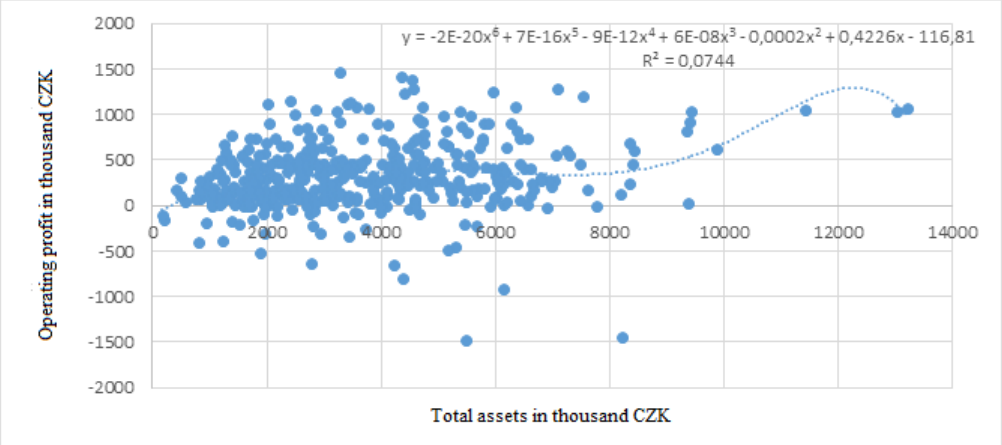
Total assets and Operating Profit correlate at a value higher than 0.26. Thus, it is impossible to talk about a significant dependence in both quantities. Even so is data spaced by regression curve, 6th Order Polynomial. Based on this, the development of operating profit may be guessed based on the size of the enterprise determined by the volume of total assets. The relation of foreign sources and operating profit was also shown. This relation may show us the action of leverage effect, only with the assumption that there will be a relatively high level of correlation between both quantities. That is, however, equal to 0. Even so the points in the graphics are spaced by Polynomial of the 6th order. Out of it we may read that the ideal level of enterprise debt concentrated in Cluster 6,1 is equal up to CZK 2 million.

3.2 Cluster 4, 2

Cluster 4,2 of topological grid occupies the imaginary second partition, related to frequency. There are 433 enterprises within it. With regard to input parameters, we may derive a typical representative of this cluster: Total Assets: 3668,8 thousand CZK, Fixed Assets: 1128,9 thousand CZK, Current Assets: 2486,1 thousand CZK, Own Sources: 1754,5 thousand CZK, Foreign Sources: 1870,1 thousand CZK, Performance: 5028,4 thousand CZK, Value Added: 1776,8 thousand CZK, Operating Profit: 323,4 thousand CZK, ROE: 14,94 %, Profit before Taxation: 267 thousand CZK.

A typical enterprise of this cluster is three times bigger than of the cluster 6,1 (meant from the perspective of total asset volume). We are talking about an enterprise with approximately identical level of automation, and share in the total property. The greatest difference, however, is the positive operating profit and significantly higher return on equity (14.94%). Even in this case it is definitely interesting to explore the relations of some quantities. Graphics 3 offers a relation of total assets and operating profit.

Figure 3: Relation of total assets and operating profit of Cluster 4,2



Source: Author

The correlation is equal to 0.27. Equally, we can not talk about a significant dependence of both variables. However, in this cluster we may be observing the fact that the higher volume of assets predicts a higher operating profit. The trend connector again has the form of Polynomial of 6th order. Graphics The relation of foreign sources and operating profit were also shown. Not even in this case the correlation coefficient is not high. However, even in this case we may derive the fact that a higher level of debt means higher operating profit.

4. Conclusion

The aim of this contribution was carrying out a cluster analysis of enterprises operating in processing industry, and identifying enterprises that have ended their activity without being pushed by the results of their economic activity. The aim of this contribution has been fulfilled only partially.

Cluster analysis was carried out using neural networks without a teacher – Kohonen networks. Based on cluster analysis the enterprises were divided into clusters in Kohonen map (10x10 clusters). Some clusters are, relating to number of enterprises, significant. Most numerically represented are clusters 6,1 and 4,2. Thus, these clusters were subdued to further analysis. In the case of both clusters, typical representatives of these clusters were defined.

They differed in their size and volume of generated operating profit. Enterprises in cluster 6,1 were lossy on the average, and extra capital was not bringing extra operating profit. The typical enterprise in cluster 4,2 is three times bigger than the enterprise in cluster 6,1. Moreover, this enterprise had the average ROE of 14.98%. A clearly significant result may be derived from the analysis:

1. A greater enterprise (respectively an enterprise with a greater volume of assets) generates on the average a greater operating profit.
2. In case of a greater enterprise, there is a greater financial leverage effect, i.e. with the growth of debt operating profit keeps growing, and return on equity keeps growing, too.

Unfortunately, it was impossible to identify enterprises that ended their activity without being pushed by economic results. Having eliminated enterprises that were acting irrationally, the set of enterprises was left significantly small. Thanks to that it would be impossible to generalize the obtained results.

The size of the text has not allowed it, but definitely it would be interesting to prepare a report on the situation of Czech enterprise within all clusters of Kohonen map.

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GREENHOUSE GAS EMISSIONS AS A GLOBAL PROBLEM OF NOWADAYS

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Abstract. Greenhouse gases (GHGs) warm the Earth by absorbing energy and slowing the rate at which the energy escapes to space; they act like a blanket insulating the Earth. Human activities are responsible for almost all of the increase in greenhouse gases in the atmosphere over the last 150 years. The primary sources of GHGs emissions are: electricity production, transportation, industry, commercial and residential, land use and forestry, and agriculture. From year to year, emissions can rise and fall due to changes in the economy, the price of fuel, and other factors. How will economic and social developments drive environmental change to 2030? If we will not seriously deal with GHGs emissions we risk irreversibly damaging the environment and the natural resource base needed to support economic growth and well-being. The "Climate Action and Renewable Energy" package adopted by the Council on 6 April 2009 underlined the objective of limiting the rise in global average temperature to no more than two degrees Celsius above pre-industrial level. To achieve this goal Member States agreed to reduce total EU GHGs emissions by 20 % compared to 1990 by 2020. Is it realistic? The aim of our article is to create a mathematical model based on Markov chain to describe changes in emissions development.

Keywords: greenhouse gas emissions, Markov chain

JEL Classification: F60, Q56, Q51

1. Introduction

Zemská klíma sa mení. Priemerná globálna teplota stúpa z dôvodu rastúceho objemu skleníkových plynov generovaných ľudskou činnosťou. Tieto plyny umožňujú prienik slnečnej energie, ale zabraňujú jej úniku. Priemerná povrchová teplota sa od roku 1880 globálne zvýšila asi o 0,8 °C, ale územie Európy sa oteplilo viac, približne o 1,4 °C. Z vedeckých dôkazov vyplýva, že ak priemerné globálne otepľovanie presiahne 2 °C v porovnaní s predindustriálnou úrovňou (alebo približne 1,2 °C nad dnešnou úrovňou), globálne životné prostredie sa s rastúcou pravdepodobnosťou nezvratne zmení s potenciálne katastrofickými následkami. Európska únia (EÚ) sa snaží prostredníctvom záväzných cieľov pre členské štáty a iniciatív, ako je systém obchodovania s emisiami, znižovať emisie skleníkových plynov (EU, 2014).

Riešenie problému zmeny klímy je jednou z piatich hlavných tém obsiahlej stratégie Európa 2020 pre inteligentný, udržateľný a inkluzívny rast. Jej konkrétne ciele majú zabezpečiť, aby sa emisie skleníkových plynov EÚ znížili o 20 %. Výhľadový plán do roku 2030 určuje cieľ znížiť emisie skleníkových plynov aspoň o 40 % pod úroveň z roku 1990 a do roku 2050 o 80 až 95 % oproti úrovni v roku 1990 (Climate Action, 2017).

Cieľom nášho príspevku bolo analyzovať vývoj emisií skleníkových plynov v rámci EÚ, zostaviť matematický model na predikovanie možného vývoja do roku 2030 a 2050, ako i odhadnúť pravdepodobnosti dosiahnutia cieľov zníženia emisií pre rok 2030.

Problematikou znižovania emisií skleníkových plynov sa zaoberá množstvo vedeckých ako i populárnych článkov. Keďže zdroje emisií sú rôznorodého charakteru, aj v literatúre sa vyskytujú hodnotenia vplyvov priemyslu, dopravy, energetickej náročnosti budov, či spotreby potravín na zníženie emisií. Častokrát zníženie energetickej náročnosti, či úspora vody, môže viesť k zvýšenej produkcii skleníkových plynov (Ahmad & Khan, 2016). Analýza emisií skleníkových plynov v poľnohospodárskych oblastiach vyžadujúcich zavlažovanie v Indii a južnej Austrálii je podaná v (Tyson et al., 2012). (Pradeleix et al., 2014) sa zaoberal porovnaním energetickej náročnosti a emisií skleníkových plynov systémov čerpania podzemných vôd.
V štúdii (Winans et al., 2016) sú porovnávané vplyvy zalesňovania na kvalitu životného prostredia v oblasti Quebeku s prihliadnutím na systém emisných kvót v Kanade. Odhadom nákladov a prínosov znižovania emisií skleníkových plynov prostredníctvom obnovy mokradí za zaoberali (Grossmann & Dietrich, 2012). Vplyv zníženia emisií na ochranu Veľkého bariérového útesu v Austrálii je analyzovaný v (Rolfe & Windle, 2013). Vo vyspelých ekonomikách je často predmetom záujmu zníženie energetickej náročnosti s ohľadom na emisie v oblasti stavebníctva, či už sú to budovy (Thomas, 2010), (Sandberk et al.,2011) alebo kancelárske priestory (Moezzi & Goins, 2011). V štúdii (Vieux et al., 2011) sú odhadované denné emisie skleníkových plynov pripadajúcich na jedného človeka v závislosti od 74 najčastejšie konzumovaných potravín.

2. Metódy

V našom príspevku sme sa zamerali na matematický model vývoja emisií skleníkových plynov. Použili sme dáta z Eurostatu (EUROSTAT, 2017), a to emisie skleníkových plynov v tisícoch ton ekvivalentného CO_2 vybraných krajín EÚ a údaje o celkových emisiách EÚ. Na predikovanie úrovne znižovania emisií pre výhľadové roky sme použili metódu lineárnej regresie a porovnanie vypočítaných hodnôt s cieľovými hodnotami EÚ.

Keďže na celkový ekonomický vývoj a jeho dosah na životné prostredie pôsobí množstvo rôznorodých činiteľov, tak napriek záväzným normám EÚ pre emisie, sme pokladali vývoj znižovania emisií z matematického pohľadu za stochastický proces. Preto sme v ďalšej časti modelovali znižovanie emisií pomocou Markovovho reťazca. Východiskom pre zostavenie matice pravdepodobností prechodov reťazca boli dáta o emisiách skleníkových plynov v tisícoch ton ekvivalentného CO_2 pre vybraných desať krajín EÚ v roku 1990 a v rokoch 2000 až 2015, to znamená, pracovali sme so 170 údajmi. Dáta bolo potrebné na základe vhodného kritéria rozdeliť do skupín (stavov). Pre každú krajinu sme vypočítali percentuálnu zmenu emisií v danom roku oproti úrovni v roku 1990, túto zmenu sme zobrali ako stochastickú premennú X a následne určili šesť stavov:

- stav A pre $X \leq -40\ \%$;
- stav B pre $-40\ \% < X \leq -20\ \%$;
- stav C pre $-20\ \% < X \leq 0\ \%$;
- stav D pre $0\ \% < X \leq 20\ \%$;
- stav E pre $20\ \% < X \leq 40\ \%$;
- stav F pre $40\ \% < X$.

Potom sme vypočítali pravdepodobnosti prechodov medzi jednotlivými stavmi (pravdepodobnosť, že v nasledujúcom roku je premenná X v stave s_j, keď v predchádzajúcom roku bola v stave s_i)

$$\hat{p}_{ij} = \frac{n_{ij}}{\sum_j n_{ij}}, \tag{1}$$

kde n_{ij} označuje počet prechodov zo stavu s_i do stavu s_j. Podrobnejší popis je v (Vojteková & Blažeková, 2016). (Anderson & Goodman, 1957) ukázali, že je to maximálny vierohodný odhad pravdepodobností prechodov. Z takto vypočítaných pravdepodobností sme zostavili maticu pravdepodobností prechodov P.

Základnou vlastnosťou Markovových reťazcov je, že pravdepodobnosť, že v nasledujúcom čase (po nejakej časovej jednotke, v našom prípade po roku) bude reťazec v určitom stave, závisí iba od toho, v ktorom stave bol v predchádzajúcom čase. Nech vektor $\vec{p}(t_n) = \left(p_A(t_n), p_B(t_n), \dots, p_F(t_n)\right)$ označuje rozdelenie pravdepodobnosti stavov v čase t_n. Rozdelenie pravdepodobnosti stavov $\vec{p}(t_{n+1})$ v nasledujúcom čase t_{n+1} vypočítame

$$\vec{p}(t_{n+1}) = \vec{p}(t_n) \cdot P. \tag{2}$$

Ak Markovov reťazec obsahuje absorbčné stavy, to sú stavy, ktoré nie je možné opustiť ($p_{ii} = 1$), tak maticu P môžeme rozdeliť na štyri submatice

$$P = \left(\frac{I}{R} \;\middle|\; \frac{O}{Q}\right), \tag{3}$$

kde I je jednotková matica pre absorbčné stavy, O je nulová submatica, Q je submatica vyjadrujúca pravdepodobnosti prechodov medzi prechodnými stavmi a R je submatica vyjadrujúca pravdepodobnosti prechodov medzi prechodnými a absorbčnými stavmi.

Matica

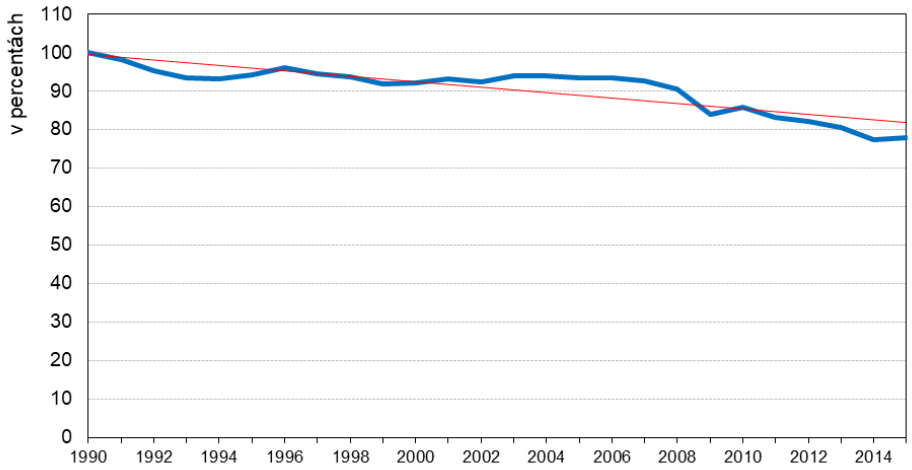
$$F = (E - Q)^{-1} \tag{4}$$

je fundamentálnou maticou Markovovho reťazca. Jej prvky f_{ij} udávajú priemerný počet krokov (časových jednotiek), počas ktorých sa reťazec nachádza v stave j pred prechodom do absorbčného stavu, ak vyšiel zo stavu i. Súčet prvkov v i-tom riadku fundamentálnej matice predstavuje priemerný počet časových jednotiek, ktoré strávi reťazec v iných stavoch, kým skončí v absorbčnom stave.

3. Výsledky a diskusia

Na obrázku 1 je zaznamenaný vývoj emisií skleníkových plynov v súhrne 28 krajín EÚ v období rokov 1990-2015. Za základnú hodnotu (100 %) bol vybraný údaj v roku 1990, t. j. celkové emisie skleníkových plynov v tisícoch ton ekvivalentného CO_2 a ostatné dáta boli prepočítané ako percentuálny podiel oproti roku 1990.

Figure 1: Časový vývoj percentuálneho podielu emisií s pridaným lineárnym trendom

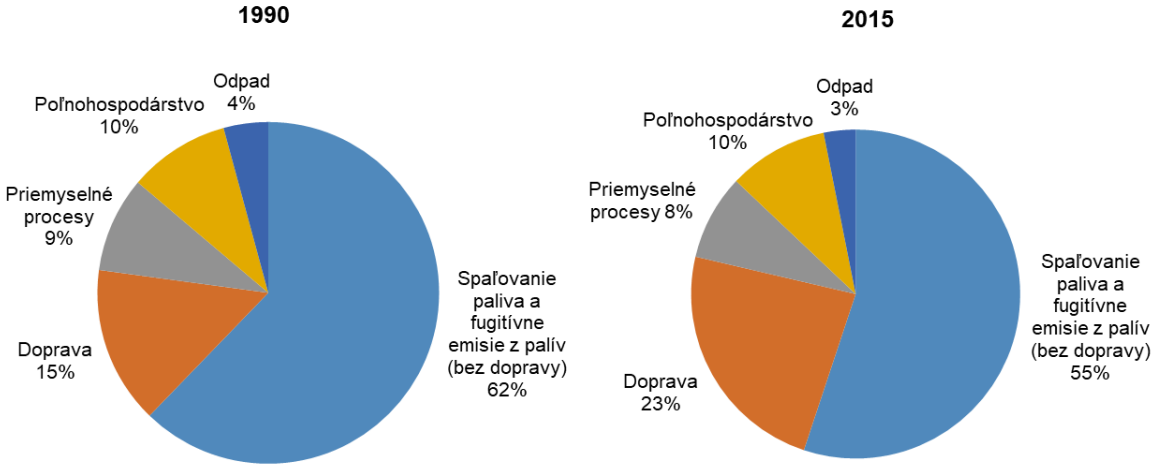


Source: authors, based on EUROSTAT, 2017

Keďže cieľom EÚ pre rok 2020 je pokles emisií o 20 %, v roku 2030 o 40 % a do roku 2050 o 80 až 95 % oproti úrovni v roku 1990, použili sme lineárnu regresiu na predikciu príslušných hodnôt. Regresná priamka má rovnicu $y = -0{,}6979x + 100{,}09$ s hodnotou koeficientu determinácie $R^2 = 0{,}76$. Pre rok 2020 vyšla hodnota 78,46 %, čo znamená pokles o 21,54 %, pre 2030 hodnota 71,48 %, čo predstavuje pokles iba o 28,52 % a pre rok 2050 hodnota 57,52 %, čo zodpovedá poklesu o 42,48 %. To znamená, že cieľ do roku 2020 je z matematického hľadiska dosiahnuteľný, ale na dosiahnutie vytýčených cieľov v rokoch 2030 a 2050 treba nutne prijať opatrenia na výraznejšie znižovanie emisií, lebo súčasný trend znižovania nie je postačujúci.

Na obrázku 2 sú znázornené podiely jednotlivých zdrojov skleníkových plynov krajín EÚ.

Figure 2: Zdroje emisií skleníkových plynov



Source: authors, based on EUROSTAT, 2017

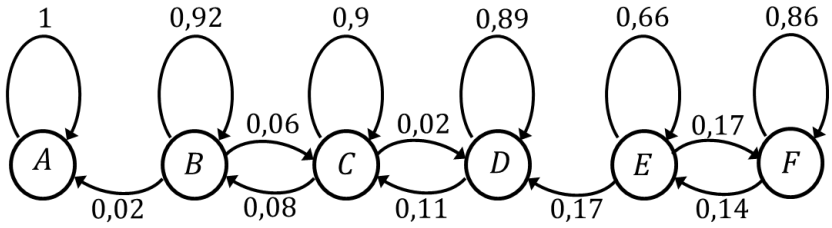
Keďže sa v prevažnej miere jedná o vyspelé krajiny s prevládajúcim priemyslom, tak najväčším zdrojom emisií je spaľovanie paliva a fugitívne emisie z palív spolu s dopravou, čo predstavuje 77 % podiel v roku 1990 a 78 % podiel v roku 2015. Rozloženie zdrojov vo vybraných rokoch je prakticky rovnaké.

V nasledujúcej časti sme vývoj emisií skleníkových plynov v vybraných krajinách EÚ modelovali Markovovým reťazcom. Ako už bolo spomenuté, pracovali sme s percentuálnou zmenou emisií v danom roku oproti úrovni v roku 1990 ako stochastickou premennou X a so šiestimi stavmi A, B, C, D, E, F. Na základe (1) sme vypočítali príslušné pravdepodobnosti a zostavili maticu pravdepodobností prechodov P.

$$P = \begin{array}{c} \\ A \\ B \\ C \\ D \\ E \\ F \end{array} \begin{array}{c} \begin{array}{cccccc} A & B & C & D & E & F \end{array} \\ \begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0{,}02 & 0{,}92 & 0{,}06 & 0 & 0 & 0 \\ 0 & 0{,}08 & 0{,}90 & 0{,}02 & 0 & 0 \\ 0 & 0 & 0{,}11 & 0{,}89 & 0 & 0 \\ 0 & 0 & 0 & 0{,}17 & 0{,}66 & 0{,}17 \\ 0 & 0 & 0 & 0 & 0{,}14 & 0{,}86 \end{pmatrix} \end{array}.$$

Pre lepšiu predstavu príslušnú maticu P reprezentujeme prechodovým grafom na obrázku 3.

Figure 3: Prechodový graf



Source: authors

Z obrázku 3 je vidieť, že s najväčšou pravdepodobnosťou sa daný stav za jeden rok nezmení, a len s malými pravdepodobnosťami môže prejsť do susedných stavov. Stav A sa javí ako absorbčný stav, keďže pravdepodobnosť zotrvania v tomto stave vyšla jednotková $(p_{AA} = 1)$.

Použitím vypočítanej matice P a (2) môžeme predikovať, s akou pravdepodobnosťou jednotlivé štáty splnia cieľ EÚ v rokoch 2020 a 2030. Ako počiatočný stav pre jednotlivé štáty berieme rok 2015. Cieľ EÚ bude v roku 2020 splnený, ak sa stochastická premenná X pre daný štát bude nachádzať v stave A alebo B. V roku 2030 bude cieľ splnený, ak X bude len v stave A. Výsledky sú obsiahnuté v tabuľke 1.

Table 1: Pravdepodobnosti dosiahnutia cieľa EÚ pre jednotlivé štáty

Počiatočný stav v roku 2015	A	B	C	D
Štáty roztriedené podľa počiatočného stavu	Slovensko	Česká republika Maďarsko Nemecko	Belgicko Taliansko Poľsko Francúzsko	Rakúsko Španielsko
Pravdepodobnosť splnenia cieľa v 2020	1	0,77	0,29	0,07
Pravdepodobnosť splnenia cieľa v 2030	1	0,21	0,09	0,04

Source: authors

Európska únia ako celok (28 štátov) sa v roku 2015 nachádzala v stave B, takže pravdepodobnosť zníženia emisií skleníkových plynov o 20 % v roku 2020 je 0,77 a o 40 % v roku 2030 je 0,21.

Daný Markovov reťazec obsahuje len jeden absorbčný stav A. Vynechaním prvého riadku a prvého stĺpca matice P vytvoríme submaticu Q, ktorá je je štvorcová matica piateho stupňa vyjadrujúca prechody medzi neabsorbčnými stavmi. Z nej pomocou (4) vypočítame fundamentálnu maticu

$$F = \begin{array}{c} \\ B \\ C \\ D \\ E \\ F \end{array} \begin{array}{c} \begin{array}{ccccc} B & C & D & E & F \end{array} \\ \begin{pmatrix} 47 & 37{,}5 & 6{,}94 & 0 & 0 \\ 47 & 50 & 9{,}25 & 0 & 0 \\ 47 & 50 & 18{,}5 & 0 & 0 \\ 47 & 50 & 18{,}5 & 6 & 7 \\ 47 & 50 & 18{,}5 & 6 & 14 \end{pmatrix} \end{array}.$$

Súčet prvkov v i-tom riadku fundamentálnej matice predstavuje priemerný počet rokov, ktoré strávi reťazec v jednotlivých stavoch B, C, D, E, F, kým skončí v absorbčnom stave A. Podľa nášho matematického modelu krajiny (Česká republika, Maďarsko, Nemecko), ktoré boli v roku 2015 v stave B, sa do stavu A dostanú v priemere po $91{,}44$ rokoch, krajiny (Belgicko, Taliansko, Poľsko, Francúzsko) zo stavu C v priemere za $106{,}25$ roka a krajiny (Rakúsko, Španielsko) zo stavu D za $115{,}5$ roka.

4. Conclusion

Zámerom nášho príspevku bolo pozrieť sa na dosiahnutie stanovených cieľov EÚ v oblasti emisií skleníkových plynov z matematického hľadiska. Regresná analýza ukázala, že zníženie emisií o 20 % do roku 2020 je teoreticky dosiahnuteľné, ale na dosiahnutie vytýčených cieľov v rokoch 2030 (40 %) a 2050 (80 % až 95 %) treba nutne prijať opatrenia na výraznejšie znižovanie emisií, lebo súčasný trend znižovania nie je postačujúci.

Na základe analýzy pomocou Markovovho reťazca, keďže EÚ ako celok (28 štátov) sa v roku 2015 nachádzala v stave B (t.j. úroveň zníženia emisií medzi 20 % až 40 % oproti roku 1990), tak pravdepodobnosť zníženia emisií skleníkových plynov o 20 % v roku 2020 je $0{,}77$ a o 40 % v roku 2030 len $0{,}21$. Z matematického modelu jednoznačne vyplýva, že výhľadovo treba zaviesť celý súbor politických opatrení na progresívnejšie zníženie emisií skleníkových plynov a to nielen na európskej úrovni, ale s ohľadom na globálne otepľovanie v celosvetovom rozsahu. Hlavnými prostriedkami sa javí vybudovanie konkurencieschopného, bezpečného a udržateľného energetického systému so zvýšeným podielom energie z obnoviteľných zdrojov (minimálne 27 % do roku 2030), zvýšenie energetickej účinnosti, ako i fungujúci reformovaný systém EÚ na obchodovanie s emisiami.

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GLOBALIZATION AND CURRENT CHILEAN BUSINESS ENVIRONMENT

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Abstract. The paper identifies and analyses a matrix of factors that influences business activities in Chile in the global context. Local business environment is explored through market environment analysis focusing on political, economic, socio-cultural, technological, legal and environmental environment. A focus is given not only on economic dimension of the complex Chilean business environment but to values and attitudes of Chilean hose holds to world issues. This analysis uses historical context, current technological development and global tendencies, role of geography and international political relation, social dimension and institutional rules, which in form of norms and acts heavily influence Chilean business environment. It is based on wide variety of data sources, especially from Chilean authorities, and international organizations. It finds out that the Chilean economic growth has a solid basis and the Chilean market represents important opportunities for foreign investment. It identifies the economic dependency on copper price. The social inequality is identified as the main shortcomings of the Chilean economic model which is on the other hand benefiting from the globalization. Chile managed to get through the global financial crisis relatively well and Chilean economy is approaching the economic level of developed countries. The values and attitudes of Chilean households concerning world issues are similar to those in Germany or USA and sometimes even with higher level of trustworthiness and tolerance.

Keywords: Chile, barriers, globalization, development, competitiveness

JEL Classification: O54, F60, E20, F00

1. Introduction

Chile is a member of the Organisation for Economic Co-operation and Development (OECD) and has been regarded as one of the most stable countries of the Latin American region and has been an important destination for foreign investment. Chile achieved outstanding results in competitiveness rankings in the past years, unprecedented in the context of Latin America. This paper entangles the success of this Latin American country using business environment analysis.

This paper analyses Chile from global economic aspect and uses aggregate numbers, historical analysis and statistical analysis from different data sources. This paper is based on allocative efficiency of business environment, but the main goal is to provide rather macroeconomic, global economic analysis (for the allocative efficiency analysis at the firm level data see Zmeškal & Dluhošová, 2015).

2. Chile and globalization: The historical context and current research

Knowledge of the historical processes in Chile is a prerequisite for understanding of the current political and social environment in Chile. The social and economic history of Chile in the period 1808–2002 is a very useful basis for study of this country (Collier & Sater 2004). The Chilean transition to democracy is well analysed in Siavelis (2000) work on institutional consolidation, in Loveman and Lira's (2002) book on political reconciliation with the dictatorship heritage. Explanation of the recent Chilean historical context and an in-depth analysis of modern Chile can be found in the new anthology published by Springer (Benedikter & Siepmann 2015).

Centeno (2007) shows in his article on neoliberal economic policies in Iberian states how the historical processes of Chilean economic transition have been affecting the country's economic profile until today. Salvaj's (2016) article on business groups is another example of historical background manifesting in current Chilean economy. An inspiring work of Tarziján (2013) shows how companies make decisions in the Chilean environment and which specific factors influence them.

Current research is oriented at neoliberal globalization and subsequent social and environmental change in Chile, because the process of globalization started first in Chile in 1974 (Borsdorf & Hidalgo, 2013). Large national and international developers control urban development in housing market in large Chilean cities (Borsdorf, et al., 2016). This is a consequence of the free market policies and rising living standards. Santiago de Chile is also a micro segregated city. It means that even in diverse neighbourhoods one certain race and class exerts its power. There are also so called "islands of wealth and poverty" within the traditional urban structure. It is because immigrants and especially Peruvians moved to Santiago and created "a new Lima" in the city centre of the Chilean capital.

This led to an explosion in wage gap between poor and rich. But Chilean national policies with respect to education and the labour market contributed to a different pattern of wage inequality than it is in the Latin American region (Frankema, 2012). Whether to be a wage earner or a self-employed person depends on the individual level of risk taking. Workers are on average risk-averse and they are seeking stable wage, which depends on the years of schooling, supply side factors, and profession type (Balcar & Gottvald, 2016). The wage gap situation in Chile motivates people to be self-employed persons (Pardo & Ruiz-Tagle, 2017).

The process of globalization in Chile is characterized by the market entry of well capitalized firms which come from North America or Western Europe. These companies are investing in export companies with products destined for foreign markets. Phelps, Atienza and Arias (2015) analyse this multinational control by the theoretical concept of enclave industries. Authors shed some light on the issue of colonial linkages in Chilean mining industry. Multinationals uses their capital and political connections, both formal and informal, to acquire land, access labour at lower costs by utilizing foreign direct investment incentives and tax breaks. These advantages reduce then the capacity of the host country to benefit from the economic activity of that multinational company.

There is an increasing vulnerability of agriculture to neoliberal policies and climate change in the world. Global agribusiness corporations contributed to the climatic trend (1997-2007) towards aridity coupled with an increasing demand for irrigation in Chile (Torres et al., 2015). There are environmental changes in Chilean agriculture. There is a trend towards market

demanded goods (exotic species like pines and eucalyptus) and traditional crops and heterogeneous native forests are on the decline.

The risks are not only in primary sector. The control and geographical organisation of the capital in the global water industry is in hands of global financial investors (March & Purcell 2014). They have no previous experience in the water business but they are taking stakes in companies in mature developing and developed markets. The problem is the same in Chile where there is a risk of reinvesting profits by multinational investors (pension funds, financial groups etc.).

Chilean economy faces the challenge of how to move from commodity export production to more knowledge-intensive economic activities. Paus (2012) argues that Global Value Chains are preventing middle income countries to move on. Large companies are offering jobs and positions which are not knowledge intensive. This is good for politicians and their agenda of full employment. The risk is that the capability-accumulation of Chilean inhabitants is not good enough and proactive state policies are not aiming at advancing social capabilities and entrepreneurial concepts in education.

3. Methods

Various research publications focus on the definition of a business environment. How to describing the nature and the manifestations of business environment? Fernando (2011) defines the business environment as all the external factors that are related to the activities of the company and thus constitutes the macroeconomic context in which the company operates.

Both approaches are combined in Kew and Stredwick (2005). They define the business environment as anything outside the organization that could (with a certain probability) have an impact on current or future activities of the organization. Kew and Stredwick understand the business environment in two dimensions: one is the "general environment", which includes factors that have a significant impact on the entire sector, such as national culture, historical development, social values, scientific and technological development, education system and general economic and social environment of the country. The second dimension is "task environment", which includes the forces influencing the specific organization, e.g. its customers, suppliers and competitors, but also the labour market or specific technology. However, the authors state that the division between the two mentioned dimensions is not static and individual factors can combine and move from the general to the task environment. This combined definition of business environment that is stressing the importance of macroeconomic factors as well as microeconomic factors serves as foundation of our methodology.

This paper follows principles of technological, political and social and cultural analysis which is tailored to modern business environment analysis. In the results section, data analysis descriptive statistics and growth trends are introduced. The analysis derives from a wide range of primary data sources. While the main source for this analysis is World Value Survey association, the Chilean Statistical Office (Instituto Nacional de Estadísticas) and the Chilean Central Bank (Banco Central de Chile), we also use international organizations' data, such as the OECD Data, or the World Bank Database. It is necessary to point out that in some cases data may differ depending on their sources.

4. Results

Since 1990, Chile has been a pluralistic democratic republic with a presidential system, in which a directly elected president heads the executive branch. President's term lasts four years with no re-election possible. The legislative power consists of the parliament called National Congress (Congreso Nacional). It is bicameral, consisting of the Chamber of Deputies (Cámara de Diputados) and the Senate. The term of office is four years for the members of the Chamber of Deputies; senators are elected for eight years.

The so-called "binomial" electoral system can be described as the main institutional heritage of the military regime in the political system. Its main feature is the division of the country into 60 small electoral districts. Each of them is assigned with two seats; for a single electoral coalition to gain both of the seats two-thirds of the votes need to be collected. In most cases, therefore, one mandate goes to the right-wing coalition and the other to the left-wing coalition. "Binomial" electoral system provides the country with very strong political stability, but it also reduces the representativeness of election results and is criticized for being undemocratic (Spooner, 2011).

Although there is a large amount of political parties at the Chilean political scene, most of these parties are, as a result of the binomial electoral system, grouped into two coalitions. From 1990 when the opposition to the military regime came to power until 2010 the coalition of center-left parties Association for Democracy (Concertación de Partidos por la Democracia) formed the governments. The presidential election in 2010 saw the first victory of the right-wing party coalition (at the time called Alianza) headed by Sebastian Pinera.

Functioning of the broad party coalitions requires the government to continually seek consensus among several political parties, each of which targets a different group of voters whose rights it seeks to represent. That makes the Chilean political practice a very consensual one. Chilean political system is thus characterized by a strong stability, which in the Latin American region stands out distinctly. Since the end of the military regime, all the presidents finished their terms.

Chile's is an open economy that respects the rules of the free market and limited government regulation. We can describe the Chilean economic model as a success in terms of GDP growth; since the eighties the country has experienced three decades of strong growth. In the context of the Latin American region, Chile can be described as one of the most successful economies in terms of economic growth and in rise of average standard of living.

In 2014, Chile reached 89% of the outcome of Greece (25.953 USD), and 85% of the value achieved by Portugal (27.068 USD). In the first decade of the 21st century, the average annual growth of Chile's GDP was 3.8%. Since 2000, the nominal GDP has more than tripled and in 2014 reached 258 billion USD (World Bank, 2017). Chile is today the sixth largest economy in Latin America. Because of an active policy in the field of trade liberalization, Chile today is a country with the largest number of existing Free Trade Agreements (FTA) in the world and it can be a model country and even mediator for problematic EU-USA trade agreements (see Vaníčková & Bílek, 2016). The industry, which supplies more than 35% of GDP, is largely dependent on the extraction and processing of minerals.

Chile managed to get through the global financial crisis relatively well. The economy declined only in 2009, by 1.7% and foreign companies invested between 2009 a 2012 over 81 billion USD (World Bank, 2017). Half of this amount consisted of investments in the mining industry and more than 26% was destined to the service sector, nearly 11% to energy, and less

than 8 percent to industrial production. Current (2014-2017) slowing down of growth of the Chilean economy is attributed to a general decrease in the volume of investments in emerging markets in connection with the calming of the financial situation in Europe and especially the global slowdown in the mining sector, which is dominant in the Chilean economy.

Unemployment in Chile has remained relatively low in recent years, around 6%. In the winter of 2014, unemployment has risen in the context of the economic slowdown to 6.7% in December of the same year but fell back to a level of 6.2% (World Bank 2017). The efficiency of active labour market policies in 2008 economic crisis was proven for training, employment incentives, and direct job creation in a open economy (Hanclova & Simek, 2014), but the Chilean employment policies target heterogeneous social structures and there is a lower level of active labor policy expenditures per GDP than in the EU (World Bank, 2017) and higher unemployment numbers in the years of economic crisis, which makes the reduction of unemployment harder.

Chile belongs to the most competitive countries in Latin America according to many global reports and rankings. Chile and Uruguay are making their business environment competitive and favourable to global trade, the main advantage of Chile over the rest of Latin American countries is relatively better institutional setting (Aramayo, 2014).

According to the World Bank (2017), there were 17 619 708 inhabitants in Chile in 2013. The rate of population growth since has been slowing down the nineties of the 20th century and is currently at around 1% per annum. Therefore, the population is getting older and demographic profile of Chile converges towards a form common in developed countries.

Ethnographic structure of Chile is determined by the historical development of the country and fundamentally differs from most countries in the Latin American region. During colonization, large quantities of Spaniards, especially from the Basque Country, came to Chile. At the same time there was a violent extrusion of indigenous Indian population. In the 19th century, substantial group of German-speaking Europeans, French, Italians and Croatians immigrated to Chile. Chileans today described themselves as "whites", partly as mixed race ("Mestizos") and only few are considered to be members of the indigenous Indian population (Benedikter & Siepmann, 2015).

In 2011, the Gini coefficient of income inequality of Chile was 0.50, which was the highest figure among OECD countries. This implies the specifics of the Chilean market given by the uneven distribution of purchasing power among the population. The weakest point of the Chilean economy according to the competitiveness evaluation is education. Especially the quality of education at primary level is highly problematic.

Given the relatively stable political environment in Chile, problem of income inequality, education issues, and other public social risks can be remedied using more income contingent loan schemes. Chile is one of the few countries where risk-mitigation efficiency and sustainability measures in pension funds were implemented: "*Chile and Australia do not have first pillars at all. They only run a zero pillar; a minimum for pensioners with low incomes and assets, the amount of which is 17% of the average wage in Chile and 25% in Australia. Instead, these countries have put most of the weight of their pension system onto the private second pillar, which is mandatory and features capital accumulation."* (Libich & Macháček, 2017, p. 448).

Based on analysis of World Values Survey (2017) database, population in Chile is used to live in multinational neighbourhood and it is not seen as problem. On average the situation

similar to developed economies like Germany (0.13) and USA (0.11) in the period 1994-2014. Trust in people of another nationality is in Chile (2.12) on average higher than in Germany (2.21), Mexico (3.18), Peru (3.18) or the USA (2.22) in the period 2005-2014. The average confidence (2.51) in major companies is decreasing in Chile and it is higher than in Germany (2.72) and Peru (2.62), lower than in the USA (2.44) or Mexico (2.44) in the analysed period 1994-2014. The confidence in the United Nations (UN) is on average very high (1.99) and higher than in the USA (2.44), Germany (2.45), Mexico (2.32) or Peru (2.15), however the trend is showing increase in scepticism toward the UN. This analysis is showing that Chilean households have similar attitudes of households of developed countries on the level of individuals, companies and global organizations. Chilean households are on average even showing higher trust and confidence in comparison to the neighbours and developed countries.

Second set of questions is about the values concerning world citizenship and science and technology as means to make world a better place (World Values Survey, 2017). Chilean households are on average very sceptic (5.96) about science and technology in comparison to developed countries (Germany 7.2 and USA 7.1) and even in Mexico (6.21). Chilean households believe they are a part of global community. On average, members of Chilean households see themselves as world citizens (1.97). This result is comparable and even better than in more developed countries (USA 1.97, Germany 2.19).

5. Conclusion

Chile is a territory that is unique in the context of the Latin American in several aspects. The political situation is stable and consensual political tradition prevails without major upheavals. Consequently, there is a stable economic environment. Although economic growth slowed down in recent years, Chile holds the position of the most developed country in Latin America and the performance of its economy is close to some Western European countries. Chile even surpasses some in international assessments of competitiveness. The values and attitudes of Chilean households concerning selected issues about world and globalization tendencies are similar to the households in Germany and USA.

The weakness of the Chilean economy is its dependence on exports of copper and very high inequality of income distribution. Technological environment in Chile is relatively mature and legal conditions are stable and comparable with developed countries. Environmental awareness plays an important role in Chile and the natural conditions represent opportunities, e.g. in the energy sector, as well as threats. Overall, Chile has potential to remain among the most attractive countries in Latin America for foreign investors and its market represents many opportunities for foreign companies.

Further research may supplement this article by focusing on competitiveness of the companies present at the Chilean market using microeconomic data, e.g. collecting qualitative data directly from these companies via questionnaire research.

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«SMART REGULATION» AND MODELS OF CIVIL COOPERATION IN THE CONTEXT OF GLOBAL CHALLENGES

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Abstract. The "Smart regulation" concept developed by the European Union in 2010 implies the management system's orientation on reducing administrative barriers, using a public consultation standards and developing a civil communication systems in the global world. Management based on the concept of "smart regulation" implies a decentralized system based on the principles of cooperation and collaboration, which is considered in the article as a significant potential for development of public policy processes in the global dimension. The Regulatory Impact Assessment emerged as an element of the New public management model gets a new meaning in connection with spreading of "smart regulation" concept and the current world economic crises. The Regulatory Impact Assessment allows to get an answer about feasibility of using some regulatory mechanisms, laws and also stimulates the development of public-private partnerships. Decline in civil society interest to formal procedures for Regulatory Impact Assessment reflects the frustration and rejection of formal mechanisms in a number of regions. At the same time, civil society demonstrates the willingness to cooperate and responsible participation in public policy management processes, demonstrates the development of civic participation forms, growth of activity, self-organization, responsibility (civil capacity) and citizens consolidation. In the article, based on analysis of Regulatory Impact Assessment indexes and other forms of civic participation in Russia in comparison with Slovakia, civil cooperation models are proposed that are considered in the context of global challenges.

Keywords: Smart regulation, New public management, globalization

JEL Classification: F60, F61, M38

1. Introduction

The process of democratization in Russia has been characterized by many contradictions in the last 30 years (Korostyshevskaya & Urazgaliev, 2016). The "Smart regulation" concept and its implementation in Russia in comparison with Slovakia, which is at the center of this paper, will illustrate how the central government of Russia tried to establish better relationships with federal units and to encourage the development of civic initiatives.

At present, the Russian Federation has 85 administrative units. These include 21 national republics, 61 territorial units (regions) and three cities with a special Federal status. The transition from the Soviet system, which was started by president Yeltsin in 1991, has met with great difficulties. In spite of some progress, many incumbent politicians are still reluctant to give up power. Political bargaining between the national republics and Moscow brought about a pattern of decentralization, called ‘asymmetric federalism’ as national republics

received more legislative powers and privileges than other administrative units. The autonomy of the national republics went so far that their legislation sometimes contradicted federal legislation, particularly in legislation on local government issues (Volkova, 2013). In order to deal with these problems, President Putin launched a new administrative reform in 2000. One of the major innovations of this reform was the creation of seven large federal regions, each of which united national republics and other federal units which were geographically and economically close. (St. Petersburg and Leningrad Region are in the North-Western Region.) For each region, a representative of the President of the Russian Federation with executive powers was appointed. Initially, the power of the Executive Representative was limited to controlling the legislative process and to monitor the compliance of regional laws with the Constitution and the Federal Laws. However, in the process of the reforms the power of the new institution was increased significantly.

2. Methods

This paper focused on the motives and objectives driving 'Smart regulation' program, as set out in official documents, and the concrete results and achievements which can be observed 12 years after launching the pilot. It also includes an analysis of the negative effects of the program which emerged in the process of implementation and the ways in which the main ideas and principles behind the program were changed under the influence of the predominant political and administrative culture. The empirical data for this analysis are based on social surveys carried out in the North-Western Region between 2005-2017. The authors also analyzed reports of the administration of St. Petersburg and Leningrad Region in comparison with Slovakia.

3. Russian Case: Results and Discussion

3.1 Some difficulties of the decentralization process in Russia

The problem of decentralization was one of the greatest challenges for post-communist Russia. Starting from 1991 a series of administrative reforms has been undertaken, aiming at decentralizing Russian territories. The process was complicated and painful as there was no clear idea of how to organize the reforms (Nureev, 2013). The new legal norms stumbled over political culture, as Russia has historically been a highly centralized state, where a powerful state apparatus and a strong central authority were regarded as positive values. The basic purpose new administrative reforms from 2003-2010 was to improve multi-level governance. It emphasized the creation of favorable conditions for the development of a strong civil society, which was envisaged as a prerequisite for successful decentralization. Local government, in turn, was seen as a major agency for facilitating the formation of civil society and the maintenance of responsible government at local level. Transparency, inclusiveness and close interaction with the population were seen as major conditions for effective governance.

However, the current relationships between levels of government are still determined by traditions of territorial division. This resulted in new difficulties of coordination between levels of government; in particular, it created obstacles for the devolution of powers from federal and region levels to municipal level and favorable conditions for the increase of corruption at local level.

3.2 The implementation of the 'Regulatory Impact Assessment'

Regulatory Impact Assessment (RIA) is a socio-economic study that answers the question about the appropriateness of introducing certain regulatory mechanisms and the development of a "public-private" partnership (Kirillovskaya et al, 2016). RIA is "a regular process for assessing positive and negative outcomes from potential or ongoing regulatory impacts and analyzing possible alternatives", written in OECD (Organization for Economic Co-operation and Development) program document.

RIA originated as an element of New public management. Its implementation in a number of Western countries (USA, Great Britain, Germany, Holland, Norway, Sweden) became an important part of managerial reforms in the middle of 1980s (Gregova & Dengov, 2015). RIA institution and methods of its implementation and application are the subjects of many studies in the modern scientific literature. The most of research is interdisciplinary. The historical development of state evaluation, as noted by H. Wolman (Wollman, 2004), is about thirty years old and includes three or even four (Belyaev et al, 2005) stages of development. This is the gradual replacement of the New public management by the management of public values (Volkova, 2013). This communicative turn can be considered the beginning of the fourth wave of assessment (Cygankov & Smirnova, 2007), when the main task of evaluation is the search for consensus between different actors. This is the reason for transition to "Smart Regulation" (SR) concept, the core of which is a decentralized system based on the principles of cooperation. SR aimed at reducing administrative barriers, introducing public consultations standards and developing civil communication systems, but it can bring some new social risks (Kliestik & Dengov, 2015).

In Russia RIA is officially implemented in accordance with adoption of the "Concept of risk management and improving the availability of public services for 2011-2013", which was officially fixed by the Russian Government. From the outset, universities, colleges, industrial enterprises, NGOs and local authorities were offered the chance to participate in the Regulatory Impact Assessment procedures. This was supposed to help activate the institutions of civil society and to open up an effective dialogue between them and central government. It was like a chance to improve their reputation in the eyes the local population and business structures. The first evaluation of the Regulatory Impact Assessment was carried out by the staff members of the city government. However, such a large scale assessment could not have passed unnoticed by the politicians. A group of political scientists, sociologists and lawyers was set up, which looked for ways to overcome the negative tendencies in the implementation of the Smart Regulation elements.

As a result of the program, a wide network of public was created which could be used for consulting the citizens and collecting feedback from them. The mass media played an active role in the process of encouraging citizens of different subject entities of the region. Another important aspect of the program was the creation of a uniform information network, including internet links. The project had its own website (orv.gov.ru), which helped to start and facilitate discussion and created a chat club. Also, the Ministry of Economic Development (MEDT) creates and implements regional analogues of website (regulation.gov.ru), which serve as a platform for laws projects public discussion, for example, St. Petersburg regional portal (regulation.crppr.gov.spb.ru). Moreover, similar groups are created in social networks (Facebook, VKontakte). This allowed the project to attract young people to discuss the problems of the region. Moreover, it ensured the transparency and openness of all the processes within the program itself.

Unfortunately, at the moment some regions, having approved the official procedures for

using Internet resource for consultations, have not yet turned to its direct application. Nevertheless, in many regions there are agreements on cooperation with large regional NGOs that represent and protect the interests of businessmen, and there is also an agreement on cooperation with Business Protection Commissioners in Russian subjects. According to the Ministry of Economic Development and Trade documents, the main purpose of using RIA is to make a reasonable, considered and most effective decision at the state level. It is important to note the existence in Russia such a mechanism for public policy development as building a RIA's quality rating in subjects. There are three approaches to the rating of regions represented by such structures as: "People's Expertise" of the All-Russian People's Front (ONF), the National Research University Higher School of Economics (HSE), and the Ministry of Economic Development of the Russian Federation (MEDT). In the field of RIA research, the HSE and its Center for Regulatory Impact Assessment are currently holding the leadership position. The approach developed by the Center within the HSE in 2014 was to assess the quality of RIA implementation in two main components that characterize the costs and results of RIA application:

1. Resource support assessment, including training of civil servants.
2. Evaluation of practical RIA quality on the basis of such documents as summary reports, conclusions and expert opinions.

ONF "People's expertise" for monitoring and building its rating used the businessman's survey. It was conducted once in 2014 (survey about 1800 businessmen in 83 regions). It's fundamentally important that this survey revealed a low level of businessman awareness about RIA. Only 44% knew what it means. Nevertheless, this rating influenced the editing of main MEDT rating and led to the appearance of "Independent Evaluation" position (Centre, 2016).

The main methodology used today for rating the regions was developed by MEDT in 2014. It contains such sections as "RIA Implementation Mechanism", "Methodological and Organizational Support", "RIA in local Government", "Independent Evaluation". These sections consist of criteria that are estimated at 100 points in total. Based on the scores on a 100-point scale, the subjects are divided into four groups ("Highest level", "Good level", "Satisfactory level", "Unsatisfactory level"). The final rating is published on the official website (Method, 2015). For example, you can see in Table 1 the dynamics of the North-Western Region of Russia in the rating of the MEDT for the period 2014-2016.

Table 1: the dynamics of subjects in the regions ranking according to the MEDT methodology for the period 2014-2016

Year	Saint-Petersburg	Leningrad region
2014	38	35
2015	17	5
2016	45	2

Source: On the development of Regulatory Impact Assessment Institute in Russian Federation subjects. (September 2017). Regulatory Impact Assessment: official site. [Online]. Available: http://orv.gov.ru/

All these ratings rank the subjects differently, because they always use different criteria and evaluation methods. Therefore, it is difficult to determine subject's position true.

3.3 The "Smart Regulation" as a way to improve multi-level governance in the North-Western Region of Russia: Saint-Petersburg and Leningrad Region

The main objective of the 'Smart Regulation' is to improve the relations between central (Federal) and regional levels of government, between civil society and state in Russia. Furthermore, it was intended to support public initiatives and encourage participation of

citizens in public issues. The launch of the 'Smart Regulation' concept was brought about by several factors. First of all, it was aimed the development of new relations between various levels of government, in particular, between the state and regional levels. Secondly, it was aimed at dealing with a lack of communication between the state and the citizens and the business organizations. According to the reforms plan, its main goal is to create conditions for wide and open discussion of vital problems within the subject entities of the Federation and the local authorities. This became particularly urgent in St Petersburg, the center of the North-Western region, as the city was given a strong impulse towards faster social, economic and political development (Antonyan et al, 2016). Despite the fact that in the Soviet period relations between state and society in this region - as in the entire Soviet Union - were characterized by strong alienation and weak civil society.

Another major goal of the Regulatory Impact Assessment was informing the population about the activities of the federal authorities, including legislative initiatives, economic programs and projects. According to recent surveys, one of the greatest difficulties experienced by past government reforms in Russia was the rather bad organization of the information campaigns, by means of which citizens were supposed to be given clear explanations of the essence of those reforms. Formally, North-Western Region of Russia realizes a broad approach to RIA implementation, which implies a prospective and retrospective assessment (an assessment of the state regulation effectiveness and an assessment of the actual impact, respectively). But in practice there are a large number of RIA opponents in the region, for example, leader of the regional businessmen public organization "Business City" A. Shabanov, Business Protection Commissioner in St. Petersburg A.V. Abrosimov and leader of the public movement "Small business supporting" G.V. Yanin. All of them say that officials are not interested in public consultations, because a negative evaluation of legislative initiatives does not stop their adoption. Therefore there are alternative assessment sites, for example, Joint Expert Council for Regulatory Impact Assessment (Small Business News, 2017).

At the same time, St. Petersburg civil society demonstrates its readiness to cooperate, to responsible participation in the processes of public policy management. This is clearly seen in the example of St. Petersburg's struggle for St. Isaac's Cathedral. In connection with this, it is possible to make a conclusion that this model of behavior can be called *protest*. Leningrad region, in its turn, has made a number of important steps aimed at the development of civil communication and civic capabilities in the past few years. In particular, agreements were concluded between administrations of municipal districts and public organizations during the RIA procedures in Leningrad Region. This region was included in the number of pilot Russian regions to create a regional portal on the basis of the federal (regulation.lenreg.ru.) for public discussion of laws. The successful implementation of pilot project contributed to promotion of the RIA process and its information support: from September 1, 2016, an official site (econ.lenobl.ru) conducted a survey of local businessmen in order to identify problematic issues and the main directions for the development of RIA in the region. Parallel to the practice of public consultations other forms of civic engagement are successfully developing on the initiative of public authorities in the Leningrad region. Government of the region, since March 2011, has taken measures aimed at supporting village headmen as one of the most effective forms of citizens' participation in local Government (Patraeva et al, 2013). And if in 2014 the number of headmen in municipalities was 1,433 people, today in the region there are 1653 village headmen and 453 public councils. An approximate number of headmen in the Leningrad region in the future may be 3540 people and about 10,000 members of public councils. This is a huge number of citizens, local activists who can be directly involved in the

work on solving local problems. Thus, the model formed in this area is a *model of loyal participation.*

4. International case. Slovak experience: Results and Discussion

Slovak experience is very interesting in the context of RIA application. This country demonstrates progress in resolving issues of Smart Regulation, despite the complicated historical experience (Staroňová et al, 2007). In accordance with order introduced in 2001 RIA was required for all strategic government acts that must be published in official government publications (Derman, 2014; Piloting, 2017). Thus, the range of analyzed policies included the current administrative decisions (for example, the creation of working groups) that did not have pronounced economic, social or environmental consequences. The Ministry of Economy prepared a Business Climate Improvement Concept in Slovakia in 2011. This Concept, in addition to systemic changes in business regulation in Slovakia, includes a 30% reduction of administrative barriers.

The second phase of the Business Climate Improvement Concept in Slovakia was completed in 2013. According to the Statistical management at the moment administrative barriers have decreased by 25% from the planned 30%. 53 of 94 changes in the legislation of the Slovak Republic are working successfully, another 8 are canceled. It is important to note that most of the measures were aimed at easing the pressure on small and medium-sized businesses. According to preliminary data of the country's Statute in 2013, the share of small and medium-sized businesses in GDP in current prices was 71,463 million euros, which is 2% more than in the previous year. Production increased by 2.4%. Ten years ago Slovakia began implementing serious structural reforms in order to become one of the best places to do business in the EU. Today the Republic is perceived as a successful model for other European countries in terms of creating a favorable climate for investment and business. Slovakia is a full member of the EU, NATO, OECD, the Euro Area and the Schengen Area. But more importantly that Slovakia carries out a number of activities aimed at normalizing relations between the state and civil society, the state and business. For example, there is a well-known portal in the business environment «Business Friendly Slovakia» www.businessfriendly.sk. This portal is designed to exchange views and legislative initiatives emanating from business community. It is a *model of responsible cooperation.*

5. Conclusion

In conclusion, it should be noted that the ability of citizens to participate in public consultations, in our opinion, is one of the most important elements of the RIA. It is he who acts as a mechanism for the development of public policy, as evidenced by the analysis of regional practices. This is the real mechanism for the development of public policy. Without active businessmen' position, the implementation of RIA is meaningless, and without a qualified and interested expert community, there is a risk that certain groups will be squeezed out of their interests despite the negative RIA conclusions. Despite the existence of some problems, this kind of evaluation already benefits, and in the future it has prospects to become one of the most important components in the Russian political and administrative system.

It should be noted that these interesting and inconsistent experiences in the North-Western Region of Russia were an attempt to search for ways of improving the interaction between the state, local authorities and civil society (Pashkus et al, 2015). The North-West region is one of most developed regions, where there is an efficient ICT infrastructure which contributed to

the success of the program (Pashkus et al, 2016). Moreover, the negative tendencies identified in the program of Regulatory Impact Assessment are so serious that they will require additional research and significant corrections. The reform process in the history of Russia has always been started by the central authority (Gohberg & Kuznetcova, 2012). So it was also in the case of the 'Smart Regulation' concept. Despite the difficulties during the implementation of projects, these reforms 'from the center' did help to create improved conditions for and to promote the further development of an active and participative civil society. During the process of implementation of the Smart Regulation concept role of the population in local governance has increased. In the subjects of the Russian Federation that we have examined, civil society demonstrates its readiness to participate in public policy management processes, but in the regions civil responsibility is understood in various ways and, accordingly, the types of interaction with state structures are different. In St. Petersburg it's a protest model. The region did not support the protest moods of the nearest neighbor and retained exceptional loyalty (the model of loyal participation). Finally, the experience of modern Slovakia demonstrates the prospects for developing a model of responsible cooperation. This is the most acceptable model for other countries (Pokrovskaya et al, 2016).

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GLOBALIZATION AND THE PROSPECTS FOR DEVELOPING COUNTRIES: NEW DEVELOPMENT INSTITUTIONS

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Abstract. Globalization has tied national states into interdependent system. One of the major goal of establishing the unified global space was to empower less developed countries and create more opportunities for new markets and wealth, inspiring the economic growth and social prospects. International development institutions were dedicated to harmonize interactions between diverse actors and to establish common mandatory regimes, incentivizing developing countries to be relevant. As the global order has been transformed by new regional powers, existing international institutional architecture is not adequately facing the challenges posed by the current status of the global economy, and hence could be supplemented by new regional financial mechanisms. The article provides an overview of recent initiatives, launched by BRICS countries: Asian Infrastructure Investment Bank, New Development Bank, and Silk Road Foundation, focusing on factors beyond their founding; agenda and first projects; challenges, faced by these institutions. New Development Bank, AIIB, as well as China's One Belt One Road program, have different targets and roles on regional integration, that allows for differentiation of responsibilities and to provide omnichannel support for development projects. It is argued, that new institutions have the potential to achieve several positive and complementary aims: provide additional financial support for infrastructure projects; leverage the savings of emerging economies for the purposes of development; serve as a forum for incorporating emerging economies into the multilateral global system. Also, it is argued, based on comparative analysis, that new BRICS initiatives are complementary to existing international institutions and organizations rather than competitive to them. Given a massive need for greater volumes of development finance (The World Bank estimates an infrastructure deficit of at least $1 trillion in these regions), particularly for basic infrastructure, new development institutions could help to fill infrastructure gaps and provide new prospects for developing countries.

Key words: Globalization, Development Institutions, Emerging Markets, Global Governance, BRICS, NDB, Silk Road Fund, AIIB

JEL Classification: F60, F61, O19

1. Introduction

Over many centuries, different national states across the world have established progressively closer contacts. In 20 century, the pace of global integration has increased. Unprecedented changes in technologies, communications and transportation impacts flows of goods, services, capital and labor cross-national borders. But recent global economic and military crises made to reconsider the concept of globalization. (Gregova & Dengov, 2015;

Lyakin & Benson, 2016). There are a lot of discussions among scientists, experts and politicians about advantages, challenges and perspectives of globalization: whether it is reversible or replaceable by new tendencies, was it good or evil. (Pashkus et al., 2016) During and largely due to globalization process many regional powers (China, Russia, Brazil, India, Turkey) have become strong enough to challenge the West-led global order (Bremer, 2012). The economic globalization process has tied national states together into interdependent system. The global economies are experienced profound change: emerging regional powers are challenging the hegemony of developed countries. (Pokrovskaya, Sokolov & Ivanov, 2016; Gregova & Dengov, 2016) Group of regional leaders, although values and interests of these countries are quite divergent, synchronize their efforts and create a new influential power (Canuto & Giugale, 2010). These countries consider that the major existing development institutions are not adequately facing the challenges posed by the status of the global economy, and hence could be supplemented by new institutions. Faced with both external and internal challenges, at a time when development funds are more needed than ever to tackle the gaps in infrastructure and sustainable development finance, BRICS promote a set of new financial institutions.

Three have been formally established: the Asian Infrastructure Investment Bank, which has been capitalized with $100bn dollars; the New Development Bank with starting capital of $50bn; a Silk Road fund with $40bn of capital put up exclusively by China. These institutions will contribute the potential growth rate of the region and consolidate new BRICS role as a financial global center. Moreover, visible leadership commitments at the highest political levels can ensure a further promotion of institutions as a central component of BRICS strategy.

The paper is structured as follows: Introduction section addresses general statements and provide the outline of the paper; section Results provides general findings of the study; Section Discussion places the BRICS Development Institutions in the broader context of the global financial architecture and outlines rationale beyond the BRICS countries initiatives. In relation to the BRICS development banks (NDB, Silk Road Fund, AIIB), a brief reference will be made to outline the main differences in institutional governance models and scope of landing. Conclusion concludes. The paper applies the global governance and international development institutions theoretical frameworks on new BRICS initiatives context and provides analysis of them. The empirical part of research is based on UNSTAD statistical data and data from secondary sources, such as publications, reports of the international development institutions, BRICS official statements, expert's opinions. The paper attempts to provide a critical review of the new financial institutions, its status, and new opportunities for developing countries, bringing with these initiatives.

2. Results

Countries become more interlocked through the globalization. Global trend demonstrates that developing nations are no longer lagging in their efforts to improve, but became the next engine of economic growth on the contrary. (Korostyshevskaya & Urazgaliev, 2016) The spread of global value chains and rapid technological progress lead to transformations production and country productive distribution in global value chain (GVCs). This rapid process of commercial integration allowed many developing countries to attract FDI to fund the policies, addressing the needs in infrastructure and more sustainable development. Investments became a next driver of productivity, and wellbeing, as well as help to address

core public issues in health, food security, education and infrastructure policy domains. (Kirillovskaya et al., 2016; Kliestik & Dengov, 2015) Regional development projects provide persistent reasons for increasing national contest for the "localization" of investments, ensuring long-term infrastructure funding and strong economic motivation to renovate undeveloped zones. (Plotnikov et al., 2015)

New BRICS Development Institutions represent new financial arrangements, more appropriately designed to address the financial, development and political realities of the current global context. Serving as a forum for incorporating emerging economies into the multilateral system on their own terms, they are dedicated to overcome development inertia and to provide impetus for emerging market economies.

3. Discussion

3.1 Regionalization of the investment flows

As the global world has been and continue to be transformed by new modes of new relationships in realm of security, economic, social, cultural issues, international institutions exercise more influence and power to provide support for national governments. The main prerequisites for participation in this system is relevance to the international regime. Complication and fast progress of the current financial flows requires governments to conform and to learn, researching new directions for financial governance. For the development organizations (World Bank, The Millennium Challenge Corporation) and the international financial institutions (IMF, the World Bank) universal standards mean the green light for the investments, predictable rules of business and continuous loan relationships. The international institutions (EU, UN, OECD, IMF, the World Bank) serve as mediators between actors that help to solve collective-action problems, as well as to incorporate countries into a global market system (Stigliz, 2002).

But globalization, making the global governing institutions possible and meaningful, also tests them on managing capabilities and readiness for reconsidering their approach in the name of maintenance the global order. Governance arrangements, particularly the World Bank and the four major regional development banks, were designed as part of an economic and political global order that no longer exists. The process of creating new institutions, launching by BRICS countries (Brazil, Russia, India, China and South Africa) shows the existing dissatisfaction with the current structure of global economic governance. Increased participation in global economic governance assumes a greater autonomy of the BRICS countries in the decision-making process and a more equitable redistribution of management functions in accordance with the current economic and political weight of countries (The Strategy for BRICS Economic Partnership, 2015).

Many countries have recently attempted to gain more independence in the development project governance, first all, in terms of loan conditions, and adjust the economic, environmental and social national priorities with international institutions' imperative toward greater coherence. There arises the issue of policy hierarchy and the determination of the rationale of development policy paradigms. On the one hand, development process more than ever could not be carried and managed by national governments on monopolistic principles, on the other, more than ever, policy agenda should be strategically planned on the national level to mitigate all possible consequences. Distributed nature of much of today's development projects has significant implications for investment institutions governance

model. Open sources and network "pull models" have adopted the idea of co-investing across borders: regional financial cooperation facilitates loans transfer and lead to spillovers in the local infrastructure system. Economic cooperation between the BRICS countries has increased significantly in recent years. The volume of trade between countries in the South-South directions currently exceeds the current trade between North and South. Countries with low income also see the source of its growth in interaction with regional leaders: China, Brazil and India increasingly assumes the role of investors (China 2030, 2013). Dynamics of inflow of direct foreign investments in BRICS countries is significant, but still far from the saturation level. China – the undisputed leader in foreign investments within the Community. The top investment destinations are China (139 Billion dollar), Brazil (50 Billion dollar) and India (42 Billion dollar). (UNCTAD, 2017). Thus, these BRICS institutions are the logical outcome of intensified economic regional cooperation. NDB and AIIB, China's projects like One Belt One Road cover different aspects on regional integration, but, first, fostering cooperation, that, bringing together diverse stakeholders, can help address regional challenges and promote Community as a global investment's center (Fifth BRICS Summit, 2013).

3.2 The New Development Bank of BRICS (BRICS NDB)

In July 2014, in Fortaleza, the meeting of heads of state of Brazil, the Russian Federation, India, China and South Africa signed the agreement to create a New development institution BRICS countries. The purpose of the Bank is to mobilize resources for projects in infrastructure and sustainable development in BRICS and other emerging market and developing countries, complementing the activities carried out by multilateral and regional financial institutions for global growth and development. To accomplish this, the Bank supports public and private projects by providing loans, guarantees, equity and other financial instruments. The Bank also cooperates with international organizations and other financial institutions and provides technical assistance on projects supported by the Bank (Agreement, 2015). The amount of capital of the NDB, the BRICS — 10 billion dollars (the contribution of each of the five countries — $ 2 billion). The highest collegial body of the Bank, the Board of governors, comprising one Governor and one alternate, appointed by each state member Bank. Key decisions in the management bodies of the Bank adopted by majority of votes of the States-founders. 16 April 2016, it became known that the New BRICS development Bank approved the first package of loans amounting to 811 million dollars. The Bank has approved financing of four projects: Brazil will receive $ 300 million, China — 81 million, India — 250 million, South Africa — 180 million. (BRICS bank, 2016).

An additional important function of a BRICS bank would to provide technical assistance for implementation and assessment of the projects. A s a center of expertise, knowledge-based institution, bank is playing a key role in fostering a sound environment for investments, ensuring that funds contributes to key goals of public needs. The process of involvement of stakeholders, including business, academia, international and local social organizations would help to suite the development projects to the national economic and social interests. Without meaningful prioritization process, short-term projects, promising rapid commercialization, could tyrannize the agenda and create an incremental vision. It requires the creation of the powerful focal center with the high decision making status.

3.3 The Asian infrastructure investment Bank (AIIB)

The Bank's capital will be used to finance mainly infrastructure projects for the sustainable development not only in BRICS, but also in other countries with low and medium income

level. Focus on exclusively infrastructure could allow AIIB to gain the leadership in terms of project portfolio and expertise in the region.

The idea of creation of investment the Asian development Bank (Asian infrastructure investments bank) was first proposed by Chinese President XI Jinping at the meeting of heads of member States of the bloc Asia-Pacific economic cooperation (APEC) meeting in October 2013. In October 2014, representatives of 21 Asian countries gathered in Beijing for the Grand opening of the Bank. Such regional powers as India, Vietnam, Philippines, Indonesia and New Zealand signed an agreement of intent to participate in the initiative. In April 2015, the UK, Germany, Luxembourg, France and Italy have joined the AIIB. China controls the largest voting share (36%). The Bank seeks to attract Chinese financial capital and organizational experience in the development of infrastructure to overcome the widely recognized "infrastructure gap" in Asia. Per Asian development Bank, the gap between available funding and necessary funding is approximately $ 800 billion per year, while the world Bank estimates the investment gap in the infrastructure sector at least $ 1 trillion annually in these regions (Closing the financing gap infrastructure project bankability is Asia, 2017). The Bank's statutory capital will reach $100 billion. More than 50 countries have agreed to become founding members. Its main task is to provides funding and expert support: synchronize the activities of investments around large infrastructure projects in the region, defining the general outline and developing annual programs, coherent between among themselves. Also, providing technical and organizational support, ensuring the accountability, efficiency and transparency of programme management, are other important functions (Connecting Asia for the future, AIIB Annual Report and Accounts 2016). Another function is to develop a common project database and systematized criteria for projects evaluating. Organization of training system and conducting meta-evaluations of realized projects are also included into AIIB mandate.

3.4 Silk Road Foundation

Initiative Silk Road (“Silk Road Economic Belt” and “21st Century Maritime Silk Road,” or “One Belt, One Road” (OBOR)) was announced by President XI Jinping during his visit to Kazakhstan in September 2013. For China one of the main purpose of the project is to reduce delivery time of goods from China to Europe and strengthening ties in the Asia-Pacific region. This initiative is aimed at promoting the development of trade and economic cooperation, offering a trade of diversification of participating countries and could become a model of public-private cooperation. The main objectives of the Fund are: coordination of economic policy and efficient allocation of resources; regional integration, facilitating investments.

The initiative "One Belt, one Road" opens new trading opportunities for certain hard-to-reach developing countries. (economic corridor China-Mongolia-Russia, China-Central Asia-West Asia and China, China-Pakistan and Bangladesh-China-India-Myanmar) and fuel a sustaining financial and commercial dynamism. Altogether, the OBOR initiative involves more than 65 countries making up close to 30 percent of the global economy (an aggregate GDP of $2.1 trillion), and covers more than 63 percent of the world’s population (4.4 billion people). The New Silk Road Fund (NSRF) has already been established as a Chinese investment fund with $40 billion in assets under management as seed capital. Given the Chinese construction capacity and work force potential for development, initiative allows to foster cooperation on joint infrastructure investment overseas, facilitating integration the hard-to-reach developing countries into the GVC (China Spotlight, 2015).

3.5 Multilateral System

Importance of the BRICs as an engine of new global growth is not under the discussion: econoimc growth in these economies could overpass slowdown in the advanced economies. However, in the last period the dynamics of development of the BRICS countries is slowing, and the pace of real growth GDP is significantly behind projections. Each of the BRICs faces distinctive challenges in keeping development pace, but not the last common reason for this is the lack of infrastructure: transport, energy and communications. That fact naturally called for active government intervention (Griffith-Jones, 2014). Although the World Bank, IMF and ADB provide significant financing in the region, the volume of loans never come even close to that need. BRICS and Asia-Pacific region requires new sources of finance to face the development challenges and ensure that growth prospects are realized. Moreover, the emergence of new and important players contributes to the healthy competition of the multifaceted international investment landscape and let the "Big" Banks to focus on other SDG priorities.

Another crucial moment about new development banks is their dual role as a public knowledge institution and investment bank. Sound development projects are rarely occurring in isolation; it is a highly interactive process of collaboration across a growing and diverse network of stakeholders, institutions, academia and producers: ambient nature let to benefit from bonding the activities of knowledge dissemination and lending inside one multilateral development bank. Yet there are questions regarding governance, standards, transparency and efficiency of the new institutions. The main challenges are related to the capacity of institution's governance to manage the financial and political stability issues, to react adequately on challenges and to formulate the new version of universal finance regime, which will be positively perceived by BRICS Community, and leads to value creation that generates the rewards for human and physical capital, possessing a catalyst effect on all social domains.

4. Conclusion

The world is becoming increasingly multipolar, as emerging economies will form a growing share of the world landscape. The global finance system is evolutionary and is influenced by different factors: history, formal and informal arrangements, political issues, new production and distribution chains, evolving laws and values: there is not more one setup of investments governance model which fits different nations with their specific socio-economic, political, and cultural backgrounds and challenges. (Vertakova & Plotnikov, 2016)

Globalization, by its very nature, is quite explosive: it rearranges the regular inner order and redesign political and social system in a new manner. It gave a chance for the development for many countries, but it also broke the traditional development regimes, requiring new adequate institutional setups. The increasing interconnectedness and rapidly evolving nature of global risks and increasing contradictions between leaders and emerging powers build a new foundation for reset "the global order", and make countries to redefine competitive advantages to go ahead in the international competition. "In the global race for competitiveness and development, nothing is automatic or ever-lasting." (Troyjo, 2015). In geopolitical terms the emergence of new institutions can be regarded as the formation of a new shared platform for emerging markets. The new institutions of the BRICS more likely are complement to the existing international financial arrangements, rather than an alternative to the Bretton Woods Architecture. Most likely, between "old" and "new" financial institutions would establish a partnership, incentivizing members to be more responsible and more

accountable for their actions. New BRICS initiatives provide stimulus to reform existing international development banks to overcome governance and organizational obstacles. A consistent governance, sensitive to local institutional preconditions and based on common methods for increasing the efficiency of implementation schemes and evaluating results; full and meaningful involvement of relevant expertise and local interest groups would contribute the successful projects realization. Bringing the best practices from abroad is a key element for successful development strategy, but they should be implemented in accordance with local experience and needs. If the World Bank and IMF in partership with BRICS develoment banks would move from the paradigm based on centralist, top-down policy articulation toward paradigm based on cooperation values, empowering the local stakeholders in decision-making proces, this allows to achieve greater coherence, providing more inclusive and sustainable growth path. Distributed and free diffusion is a key characteristic of today investment flows. The emerging transnational networks became important players in global financial system. BRICS has a chance to become one of the centers of power in the emerging new model of global relations, overcoming old dividing lines East–West/The North–South.

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DEVELOPMENT OF RUSSIA'S CONSTRUCTION INDUSTRY IN THE CONTEXT OF GLOBALIZATION

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Abstract. As an economic branch, construction is a major contributor to the formation of key fixed assets for all branches of a country's economy. Capital construction industry produces industrial facilities as well as non-production assets that are commissioned and accepted under established formal procedures and, as they become fully operational, are transformed into tangible fixed assets (Minstroy of Russia, 2015; Borisova et al., 2016). It is obvious that construction plays an important role in the economy, especially in a developing one, where the need for creating new real estate objects is significant (Zou et al., 2007; PMR Industry Report, 2016; Vertakova, Y. et al., 2015; Polozhentseva, Yu., 2016; Terzi & Cavalieri, 2004). The construction sector is a complex interconnected system that encompasses the following types of entities: building contractors and specialized construction companies, producers of construction supplies and transportation aids, survey, research and design organizations, educational institutions, raw and construction materials exchanges, engineering, consulting, managerial and other firms and other formations focusing on the construction industry, including industry governance bodies and industry non-governmental organizations (Birbkov, 2012). Either directly or indirectly, enterprises from over seventy branches of the national economy are involved in the sphere of capital construction, ensuring supplies of metal and steelwork, concrete, timber, construction tools and specialized vehicles, as well as fuel and energy resources, to construction sites. One of the most prominent processes characteristic of the current situation in Russia's construction industry is fierce competition among owners of capital who are essentially interchangeable, occurring at all stages of construction. It should also be noted that globalization affects construction inasmuch as it does other branches of the economy (Neumann, 2015; Volkova & Plotnikov, 2016; Grechenyuk et al., 2016; Beno, 2016; Cuhlova & Kotikova, 2016). This article looks at the prospects and roadblocks on the way of the development of Russia's construction industry, which is currently plagued with internal contradictions and administrative barriers, in the context of globalization.

Keywords: economy, management, construction industry

JEL Classification: L74, F63, O10

1. Introduction

Construction is one of the largest spheres in the economies of most countries of the world. By means of construction, the process of expanded reproduction of industrial facilities and fixed assets is ensured. The construction industry, together with mechanical engineering, forms the basic funds for organizations of all spheres of the economy. Construction products

are considered as part of the gross product, which includes works on the design of construction projects, their erection, the installation of the necessary equipment in them, the repair of construction sites, their expansion and reconstruction, as well as any geological exploration work related to construction. Undoubtedly, the processes of globalization have an impact on construction, as well as on other types of economic activity (Minstroy of Russia, 2015; Borisova et al., 2016; Zou et al., 2007; PMR Industry Report, 2016; Vertakova, Y. et al., 2015; Polozhentseva, Yu., 2016; etc.). This is also due to the fact that construction can be attributed to the tertiary sector of the economy, which is developing at a faster pace in the world. As a result, its share in the structure of both national and global economies is growing. Therefore, globalization has a serious impact on construction.

2. Construction in Russia in the Context of Globalization

2.1 Construction as a Branch of the Modern Economy

As a branch of economy, construction possesses a number of characteristic features:

• the immobility of the building product along with the possibility of technology, material and human resources moving during the production process;
• a long production cycle;
• a high level of material consumption of products, which makes it necessary to have a strong material and technical base located within a certain service range;
• a high degree of dependence of construction processes on various factors (weather conditions, organizational and technical problems, changes in the business environment, the current phase of the economic cycle, etc.);
• complex and diverse production links within the system of co-operation of enterprises in the construction industry, which act as an external environment that forms the conditions for the efficient operation of construction enterprises.

Construction is the basis for the formation of the industry cluster. As already mentioned, this industry is serviced by organizations from more than 70 spheres of the economy, while construction, for example, in Russia, consumes about 50% of the product of the construction materials industry, 18% of rolled metal, 40% of sawn timber, more than 10% of the product of machine-building, etc. (Ataev et al., 2014). Thus, on the basis of stimulating the development of construction production, an impetus for economic growth can form and the sustainability of social and economic development can be ensured. Conversely, a decline in construction is inevitably associated with the transition of economic growth to a negative area. It is precisely these dependencies that have been observed in the Russian economy in the last decade.

All organizations that are part of Russia`s construction cluster (both nationally and regionally) can be classified as follows:

1. Bodies of state regulation and architectural/construction supervision regulating the work of the construction complex, implementing general architectural and construction policies, monitoring compliance with standards, conducting licensing of activities related to design/construction, assessing design estimates and certifying construction materials.

2. Scientific and research organizations developing engineering solutions, new materials and structures, new technologies for producing construction materials, structural/construction and assembly works, as well as new construction machinery and mechanisms.

3. Design and survey companies and architectural and design institutions performing engineering surveys and carrying out the development of design estimates. For such organizations, specialization is characteristic of the design of specific objects in various spheres of construction (civil, industrial, or transport). For architectural and design organizations implementing the design of technically complex facilities, it is characteristic that research units are present. As part of Russia`s construction complex, there are currently about 12,000 architectural and design institutions and design and survey organizations.

4. Companies engaging in the production of building materials, structures and products. They form the basis of the material/technical base of the industry, as they manufacture construction resources. These firms specialize in the production of reinforced concrete products and structures, ceramic products, wooden structures, etc. At present, the building complex of Russia produces building materials and structures at over 10,000 enterprises.

5. Firms involved in the operation and maintenance of construction machinery, tools and equipment. They specialize in motor transport services and mechanization services, leasing construction machinery and equipment, as well as providing repair and maintenance services.

6. Construction and installation organizations that perform various types of construction and installation work, erecting buildings and structures, the core of the building complex. In Russia's construction industry approx. 140,000 construction firms are currently engaged.

Thus, the complex structure of the construction industry outlined above requires a detailed analysis from the perspective of its contribution to social and economic development.

2.2 The Role of Construction in the Socio-Economic Development of the Russian Federation

The construction complex is one of the key spheres of the Russian economy and largely serves as the basis for solving the problems of social, economic and technical development. The leading role of the construction complex for achieving the strategic goals of social development is conditioned by the fact that the achievement of the final results occurs through the implementation of investment and construction programs and various projects at the levels of the federation and its regions, with their financing taking place, among other sources, via non-state funds, which include the funds of the population, whose share is close to 50% (Tab. 1). In 2015, about 137 million square meters were commissioned in Russia, both of residential and non-residential buildings and premises, the share of housing in 2015 accounted for about 78.5% of all areas that were commissioned.

The general indicators of the construction industry in Russia are presented in Table 2. It can be seen from the data given that construction production changes in a co-directional way to the dynamics of Russia's GDP, while the fall in construction production is not accompanied by a proportional decline in employment in construction. Consequently, hidden unemployment is formed here. In addition, by the ratio of the share of construction in total employment to its share in the total amount of fixed assets, it is possible to judge that construction is a labor-intensive branch of the Russian economy. For the construction industry, as well as the Russian economy as a whole, there are long-term systemic challenges that reflect both global trends and internal barriers to the development of the industry. The presence of these challenges has necessitated the development and approval of a strategy for the development of the construction industry for the period until 2030. The goal of the state policy is the creation of a safe and comfortable environment for activities in which high living standards, effective financial and economic, technical, organizational and legal mechanisms

will be ensured in the framework of improving social and economic development projects, measures on strengthening national security and spatial development of the Russian Federation.

Table 1: Residential Buildings Commissioning

Years	Commissioned, mln sq metres of total area			Share, %	
	funded by all sources	including		residential buildings of the population	residential builings of housing and construction cooperatives
		funded by the population with their own and borrowed funds	funded by housing and construction cooperatives		
1990	61.7	6.0	2.9	9.7	4.7
1995	41.0	9.0	1.7	22.0	4.2
2000	30.3	12.6	0.7	41.6	2.4
2001	31.7	13.1	0.6	41.2	2.0
2002	33.8	14.2	0.6	41.9	1.7
2003	36.4	15.2	0.5	41.6	1.4
2004	41.0	16,1	0.5	39.2	1.2
2005	43.6	17.5	0.6	40.2	1.4
2006	50.6	20.0	0.6	39.5	1.2
2007	61.2	26.3	0.9	43.0	1.5
2008	64.1	27.4	0.6	42.7	0.9
2009	59.9	28.5	0.5	47.7	0.8
2010	58.4	25.5	0.3	43.7	0.6
2011	62.3	26.8	0.4	43.0	0.6
2012	65.7	28.4	0.3	43.2	0.4
2013	70.5	30.7	0.5	43.5	0.7
2014	84.2	36.2	0.4	43.0	0.4
2015	85.3	35.2	0.6	41.2	0.7

Source: Construction in Russia. 2016: Statistics Journal, Rosstat, 2016, Moscow, p. 54

The driving force of the development of the industry remains housing construction. This trend is due primarily to the actual withdrawal of the state from the housing construction market and the interest and participation of the population in its investment. At the same time, the problem is that in Russia the town-planning policy is extremely weak. In this regard, it is necessary to reformat the residential real estate market by reducing the role of financial intermediaries (developers) and increasing the influence of responsible owners, as well as municipal authorities, in this sector.

The construction industry in Russia is currently extremely imperfect institutionally, there are internal contradictions in the legal and technical regulation. As yet, measures have not been implemented to create an integrated system for applying measures of state coercion to enterprises whose activities do not meet the requirements of energy and resource consumption, whose operational activities violate environmental standards. At the same time, state support and economic incentives for innovation in construction are required.

Table 2: Indicators of Construction Development in Russia

Indicator	2005	2010	2013	2014	2015
Volume of works performed in the construction category					
RUB bln (per prices relevant as of the time the works were performed)	1754	4454	6020	6125	6148
percent YOY (per constant prices)	113.2	105	100.1	97.7	95.2
Number of people employed in construction, yearly average					

thousand people	4986	5399	5712	5664	5652
percent YOY	105.1	100.9	101.2	99.2	98.4
Relative share of people employed in construction to the total number of the emploed, percent	7.5	8	8.4	8.4	8.3
Investments in fixed assets directed at the development of construction					
RUB bln (per prices relevant as of the time the works were performed)	129.5	342.1	438.1	469.3	448.7
relative share of investments in construction to the total volume of investments in fixed assets, percent	3.6	3.7	3.3	3.4	3.1
Fixed assets availability in construction					
RUB bln (per full reported value; по полной учетной стоимости; as of year end)	604.9	1500	1677	1775	2048
percent YOY (per constant prices)	100.2	101.8	102.9	102.7	101.7
Relative share of construction fixed assets to the total value of all fixed assets, percent	1.5	1.6	1.3	1.2	1.3

Source: Construction in Russia. 2016: Statistics Journal, Rosstat, 2016, Moscow, p. 11.

One of the weak spots of the Russian construction industry is the high level of dependence on imported building materials, machinery, and equipment. In the face of sanctions imposed on Russia by its trading partners (who are simultaneously its geopolitical opponents), such a high level of import dependence leads to long-term development risks (Bessonova & Mereshchenko, 2017).

2.3 The Specifics of Russia's Construction Complex Development in the Context of Globalization

The dynamics of the functioning of the construction complex in Russia, taking into account the developing trend of globalization and the growth of world economic relations, should be viewed from the standpoint of foreign economic interaction. The most striking indicator here is the dynamics of foreign trade in construction services (Tab. 3).

Table 3: International Economic Activity of the Russian Federation in the sphere of construction services, $ mln

Indicator	2000	2005	2008	2009	2010	2013	2014	2015
Construction services export	170	3313	6316	4123	3487	5906	4730	3664
Construction services import	406	4313	9054	4638	4602	9362	7520	4831
Construction services balance	-236	-1000	-2738	-515	-1115	-3456	-2790	-1167

Source: Calculated by the authors using Rosstat data

It can be observed that the balance of construction services trade of the Russian Federation with foreign countries is consistently negative. This is an indicator of the weakness of the national construction complex. But, at the same time, this fact points to a high level of integration of the Russian construction industry into the network of global economic ties. This means that the sanctions confrontation in which Russia and a number of the developed countries (US, EU and others) have been involved since 2014 could have a negative impact on the dynamics and pace of construction in Russia. At the same time, this indicates that there is a high potential for import substitution in this sector of the economy. That said, Russia needs to receive foreign technologies and investments in the construction sector, which is determined by its state of under-investment, compared with developed countries (Tab. 4). This factor, in our opinion, will contribute to an increase in the level of internationalization in

the construction industry despite the ongoing sanctions regime. Sanctions, as follows from the provisions of classical and institutional economic theory, can only increase transaction costs but cannot altogether stop projects of mutually beneficial cross-border economic cooperation.

In general, the development of the Russian construction complex in the context of globalization will, in our estimates, occur under the influence of two opposite tendencies. Firstly, as part of the implementation of the economic policy of import substitution, the import of construction services and materials to Russia will decline. As relevant technological and production prerequisites are created, construction exports are forecast to further grow. As a result, the role of the Russian construction complex in the global economy will change (see Tab. 3). Secondly, the external economic interaction of the construction complex will change its forms. Foreign trade in construction goods and services, as well as labour immigration to Russia (mainly from the former Soviet republics) will be replaced with active innovation and technological exchange, as well as a more active inflow of capital from abroad.

Table 4: Relative Share of Expenditure on Residential Construction to the Total Volume of Gross Capital Stock Aggregation, %

Country	2000	2005	2008	2009	2010	2013	2014	2015
Russia	11.3	12.0	13.6	13.0	12.2	12.5	14.5	15.0
Germany	32.0	28.1	25.0	26.9	26.6	28.5	28.4	28.3
Italy	25.2	26.9	27.6	27.8	28.0	27.7	27.9	27.7
Canada	28.1	31.7	28.5	30.4	29.4	28.7	29.2	31.7
Slovakia	19.1	11.7	9.9	13.9	11.6	13.1	12.4	10.5
Great Britain	24.2	24.8	21.4	20.6	20.5	20.4	21.2	21.4
France	28.6	29.6	28.6	28.5	28.5	27.6	27.0	26.4

Source: Construction in Russia. 2016: Statistics Journal, Rosstat, 2016, Moscow, p. 98

3. Conclusion

The construction complex is one a key sphere of Russia's economy and largely serves as the basis for solving the problems of social, economic and technical development. It is characterized by complex production links. The goal of the state policy should be the creation of a safe and comfortable environment for activities in which high living standards, effective financial, economic, technical, organizational and legal mechanisms are ensured while improving socio-economic development and better measures to strengthen national security and spatial development Russia. The construction industry in Russia is currently developing contradictorily, which is determined by the opposition to the trend of globalization and the strengthening of the regime of economic sanctions. The ratio of these two phenomena will determine the development of Russia's construction industry in the medium term.

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GLOBALIZATION AND INDUSTRIAL POLICY: THE ROLE OF INDUSTRIAL DISTRICTS

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Abstract. The processes of globalization contribute to the opening of markets and represent both opportunities and risks for national economies. One of the methods of protection and support of the local producers is an active industrial policy - a set of measures in the field of institutions, taxes, finance, investments and others. Russia actively participates in globalization and the international division of labour taking into account the experience of foreign partner countries. The development of a network of industrial districts is an example of such an experience, which is a combination of social, economic, financial, production and marketing relationships. The resulting environment allows industrial enterprises to participate in global competition in consumer goods markets, despite the small size of each. The article is devoted to the development of the industrial districts in Russia on the basis of foreign, in particular Italian experience. The article provides the historical aspects of the phenomenon of the industrial districts. The aspects explore the detail analysis of the specificity of the Italian economy, which is based on small and medium-sized enterprises, which contribute to the success of such projects. The analysis revealed the typology of the universal territorial industrial policy instruments. Considerable attention is devoted to the subject of the internationalisation of the Italian experience in this sphere and prospects of development of the industrial districts in Russia. The cluster and network approaches are extensively researched. The criteria for performance evaluation of cluster enterprises are developed.

Keywords: industrial policy, industrial district, cluster, small and medium-sized enterprises, chain enterprises

JEL Classification: D04, F61, L25, L26, L52

1. Introduction

The processes of globalization actively influenced the change in the practice of applying universal instruments of industrial policy. The Law of the Russian Federation on "Special Economic Zones" has been adopted. In addition, Russia began to create industrial districts. This phenomenon of the world economy has existed in various forms for about three hundred years and currently is common in many countries, in particular, in Italy, Germany, the USA, Canada.

2. Methods

2.1 Literature Review

Industrial districts are actually clusters, or groups of interconnected companies, operating in a certain area.

Alfred Marshall was the first economist who commented the relational communications between companies and entire industries (Marshall, 1980).

Michael Porter proposed a theory about the importance of creating clusters in economic development (Porter, 2005).

In Russia this problem is studied by scientists such as Andrey Yakovlev, Alexander Granberg, Yevgeniy Yasin and other scientists.

2.2 Description of the Problem

The highest level of development of industrial districts was achieved in Italy, this is due to, in our opinion, the specificity of Italian industry, which is based on small and medium-sized enterprises. It is useful to remember, there are the largest companies of the world scale ("FIAT", "Pirelli", etc.), In Italy but the entire fabric of the economy consists of small enterprises closely bounded with each other. A special feature of their development was the narrow specialization of individual territories on one particular product. A lot of small enterprises that produced one type of product are appeared on these territories. This led to intense competition, technology development, moderate prices and high quality of manufactured goods, such as clothing, footwear, furniture, finishing materials and plumbing, parts of machines and equipment, household appliances.

Thereupon, by the middle of the twentieth century structures, named today industrial districts (industrial district) - cooperative associations working on a certain territory of small and medium-sized enterprises of one industry or cluster are formed. While preserving their independence and remaining competitors in the local market, they pool resources to perform activities of interest to all of them, which they are not capable of doing on their own. These activities are marketing research, technological development, individual production stages, access to the world market. In addition, industrial districts are the optimal channel for interaction of small and medium-sized business with state structures, in particular, on tax administration and state support of national commodity producers. In terms of globalization industrial districts became an effective instrument of economic development.

As part of our study, it seems necessary to consider the typology of the above tools (see Table 1).

Table 1: Typology of industrial policy instrument.

Tool types		Nature of activity	The largest structures of this type	The largest structures of this type (Assessment)
1.	Special economic zones, including:			
a)	Foreign trade zones	Are organized at large transport junctions for duty-free storage and turnover of goods of foreign origin	Shannon (Ireland); Dubai, UAE)	1100
b)	Export-	They create industrial enterprises	Shenzhen (China);	400

	production zones	focused on the production of goods for export	Hainan (China)	
c)	Scientific and technological zones	Are created near scientific research institutes and universities for development of high technology manufactures	Boston (USA);Osaka (Japan)	350
d)	Complex zones	Have received the greatest distribution. They are a combination of elements of the above zones	Pudong (China);Masan (R. Korea)	150
2.	Industrial Parks	A more general concept than the FEZ. They accommodate both export and import-substituting production. The participation of national capital in resident enterprises is allowed up to 100% of ownership	Sonkla (Thailand); Russian-Korean Industrial Park (Primorsky Krai, Russia)	80
3.	Industrial Districts	Cooperation of small and medium-sized enterprises, representing one industry or cluster, located in a limited territory (as a rule, it is an administrative-territorial Unit of a sovereign state)	Lombardy (Italy);Lazio (Italy)	3000

Source: compiled by the authors

There are 200 such industrial districts in Italy. Most of them are concentrated in the north-east, in the center and in the north-west of the country. The overwhelming majority of workers employed at their enterprises live in the northern part. Moreover, most of all (21% of the total number) operates in the region of Lombardy, but this phenomenon has become most significant and illustrative in the Marche region. They provide employment for 83% of the region's population working in the manufacturing industry.

Production itself in industrial districts is very diverse. Most of the residents (almost 35%) work in the textile and clothing industries, followed by the producers of household goods (furniture and other building materials, glass, ceramics, etc.), engineering, leather and footwear. The rest of the districts specialize in the food industry, printing, rubber and plastic products, jewelry, high technologies and metallurgy.

The importance of industrial districts for employment and export opportunities in Italy is great, as evidenced by the data for the year 2015. In total, more than 2 million people employ in these industrial districts, almost half (45%) are employed in manufacturing industries. Thus, 66% of workers of the Italian leather industry, 62% of textile workers, 52% of manufacturers of musical instruments and 41% of machine builders work in the districts. In addition, 43.3% of Italian exports are produced in these districts. And for many positions they provide more than half of the country's exports. This includes to furniture, leather goods, textiles, processing of non-metallic raw materials, clothing, hardware (Falck et al., 2010).

In the past decade, the opportunities and experience of industrial districts have been complemented by the activities of both local authorities, primarily oblasts and governments.

The regions began to actively get involved in the work of industrial districts, becoming an intermediary in their relations with the entire economic infrastructure at the local level, outside the district and sometimes in the promotion on the foreign market. Lombardy as the richest and most developed region of the country began to form a network of representative offices abroad. Now there are already 25 of them in the world.

As for government authorities, the promotion of industrial districts coincided with the course for the internationalization of the Italian economy. To this end, all government services related to this work are united into a single body under the leadership of the missions of the Institute of Foreign Trade, the National Tourism Board, other organizations and institutions. There are also industrial districts in this network, which are able to rely on such strong rear services, to move to new markets. This feature of the Italian production system, in combination with the need to meet the requirements of hard labour legislation, led to the rapid growth of the number of small and medium-sized enterprises in parallel with the large-scale industry (Konings et al., 2001).

The industrial districts are unanimously recognized as the Italian way to economic success. Originating from the fusion of economic and industrial relations with social relations in clearly defined areas, this model allowed to launch and integrate the processes of economic development, in which enterprises and the production system coexist harmoniously.

The district model - with a high concentration of small enterprises, mainly at the craft level, specializing in the same manufacturing sector and located in the same geographical area - has become the locomotive of development in Italy, now and at the international level is often considered as a model for the economic development (Rodriguez-Clare, 2007). Industrial districts are one of the most original and important elements of the industrial structure of Italy. This model is exported and is considered as a sample.

Small businesses feel lack of the technical and financial skills to carry out complex actions to attract foreign investment. Therefore, they prefer to cooperate with other enterprises with which they are connected by a complex network of relations. Companies that attempt to enter foreign markets on their own have to part with the local system (at least as far as relocating processes are concerned), and thereby split their own production system, but in a new position they are not able to become part of the new system.

Therefore, in order to maintain the competitive advantages created by economic agglomerations such as industrial districts, it is especially important to stimulate the internationalization of systems, and not just individual enterprises (Harrison & Rodriguez-Clare, 2010). In order to achieve this goal, the Ministry of Productive Activities, as a form of support since 2002, has begun to establish new Italian industrial districts in countries that appear in the strategies for the internationalization of Italian enterprises: Russia, Romania, Croatia, Morocco and Tunisia. There are already examples of the creation of Italian industrial districts operating directly abroad. The most famous example is Timisoara, specializing in textiles and leather. There are more than 1200 Italian enterprises In this district, and this example is not the only one. In Tunisia, a new district of Carthage is being created - the City of Fashion, in which it is proposed to implement a full cycle of the textile industry. "Embryos" of industrial districts are in Eastern Europe: for example, the agro-industrial sector in Serbia and the woodworking complex in Bosnia (Peneder, 2017).

Russia in this regard is among the pilot areas.

The Italian industrial districts, entering the unfamiliar Russian market, are ready to reproduce on the spot their system, to act together in Russia on a scheme already established in Italy, without breaking the existing production chain (Yakovlev, 2004). This is the only way for small businesses to work, invest in Russia: each individually won't be able to do it. Otherwise, Italy will remain a simple exporter of finished products, but not an investor (Jacobs & DeMan, 1996). However, at the present time there is not enough net trade.

The Russian side takes into account this logic and is ready to interact in this scheme with the Italian small business. The most active on the Italian side was the Marche region. In other words, there are no obstacles to the reproduction by the Italians of their system of industrial districts in Russia. But in Russia interest is also shown in Italy's experience in developing small business.

Russia applies this model to its small and medium-sized enterprises, and Italy exports its own model. These two tasks are solved simultaneously and in parallel (Granberg, 2000).

In principle, the experience already available makes it possible to internationalize the production system according to the scheme of the industrial district, to ensure the division of labor at the international level. Thus, part of the Italian footwear is already produced in some districts according to the following scheme: the skin comes from Bosnia and Herzegovina, the soles are manufactured in Romania, and the final product is made by Italian enterprise (Moodysson et al., 2017).

This kind of division of labor in Italian small business is necessary for Russia, and to an even greater extent. The qualification of the Russian workforce makes it possible to establish on-site production of much more complex products, and the Russian market itself is so much a receptive one that is of interest for the marketing of finished products.

Initially, five subjects of the Russian Federation were selected, in which it was planned to create industrial districts - Lipetsk, Leningrad, Moscow and Sverdlovsk regions, as well as Chuvashia. At present, the district in Lipetsk, specializing in the production of household electrical appliances, really functions. Aa far as the Volokolamsky industrial district in the Moscow region design has been completed, but the work has not begun yet. More details of this project will be discussed below (Yasin, 2002).

Industrial districts are created on the basis of "district-forming enterprises", and the main flow of investments is directed to small and medium-sized enterprises entering the technological chain of the main production. As soon as a full cycle of production is created in the district where the "constituent enterprise" is located, the district earns the status of "industrial" and can claim for benefits on payment of profit tax (Pack & Saggi, 2006).

Thus, the industrial district is essentially a cluster of small firms (small enterprises cluster). The cluster consists of enterprises specialized in a certain sector of production and localized geographically.

3. Results

Clusters of small enterprises, except Italy, are widespread in a large number of countries and industries. For example, in developed countries (Germany, USA, Japan) since 1993 UNIDO with the assistance of the Private Sector Development Branch has developed a set of recommendations to help governments and the private sector to interact in the development and implementation of programs for the development of clusters and small business networks. Examples of successful clusters and methods of their formation, examples of their technical cooperation in various developing countries (India, Indonesia, Malaysia, Mexico, Nicaragua, Honduras, Jamaica, Bolivia, Madagascar, Morocco) are shown. Many researchers see the only way to preserve small firms in the context of globalization and increasing international competition in uniting them into clusters.

The UNIDO program for the development of enterprise clusters is based on the understanding that these enterprises can play a decisive role in the economic development of developing countries. However, their role can often not be realized because of restrictions related to the size of enterprises. Often, small businesses can not meet the needs of the market, which needs more products, adherence to standards and regular supplies.

4. Discussion

Clusters and networks of small enterprises should be distinguished. The term "network" refers to a group of medium-sized firms that interact to achieve common goals - complementing each other and specializing in order to overcome common problems, achieve collective efficiency and capture new markets. The term "cluster" refers to the sectoral and geographical concentration of enterprises that produce and sell a number of related or complementary goods through joint efforts.

Ideas about the advantages of network organization of business in the industry arose long ago. One of the earliest works in this area was Alfred Marshall's book Principles of Economics, published at the end of the 19th century, where researches were conducted on the industrial regions of Great Britain. Although modern special terms do not appear in his book, it is clear, however, that a cluster with a rather extensive inter-firm division of labour is actually considered in it. More than a hundred years ago, Marshal drew attention to the synergistic effect achieved by uniting and increasing the specialization of small businesses.

Most contracts are concluded by regional firms with the same suppliers and consumers. This spontaneously forms a certain circle of interrelated partner enterprises operating in local chains. Successful creation of clusters is possible even if entrepreneurs have never had business contacts with each other before. The key element of creating a network is the availability of a sufficient level of trust between its participants, through a specially trained external agent ("network broker") (Newlands, 2003).

The development of clusters of small enterprises can be carried out spontaneously or in an organized manner. An organized path is possible on the initiative of either a leading firm with substantial capital, either local authorities or small business representatives who hired professional managers. Obviously, there are no ready-made, universally valid prescriptions, but it can be argued that support from regional structures could help consolidate local business into a network organization. As the level of mutual confidence among participants in the future cluster increases, a gradual transition to more risky projects begins.

In the making a network organization, there are, as a rule, five stages: agitation and motivation of potential participants, development of a common strategy, a pilot project, a strategic project and a stage of self-regulation.

The efficiency of the functioning of a small enterprise in a cluster, as well as the effectiveness of the functioning of the industrial market, is a multifaceted phenomenon. First of all, small enterprises, united in a cluster, are a special subject of the market. In this case, the subject of the market is not just a small enterprise, but, above all, their cluster. Consequently, an evaluation of the effectiveness of the functioning of this market entity can be given both from the standpoint of the success of the functioning of the cluster and from the position of the individual small enterprise that enters it.

5. Conclusion

In terms of globalization the efficiency of the functioning of the cluster can also be assessed from the side of the consequences for the state economy. First of all, the successful functioning of the cluster is a guarantee of saving jobs for people working in small businesses. And this means that there is a preservation of the tax base. In addition, this implies a reduction in unemployment benefits. Therefore, the authorities always take care of small business. That is why the authorities at different levels often become the initiators of the creation and maintenance of a cluster of enterprises, as they rightly believe that clusters are the driving force for increasing exports and attracting foreign investment.

From the point of view of the national economy, the performance of small businesses in a cluster can be estimated by the number of created jobs (Grabois & Carlos, 2006). This indicator also indicates an increase in the middle class itself, which is considered the backbone of all democracy. In this respect, it would be advisable for Russia to pay special attention to the need to expand clustering of enterprises.

From the point of view of the industry market, the performance of small business in a cluster can be estimated by the indicator of the share of small business in the output of sectoral products.

From the point of view of the market entity, the performance of small business in a cluster can be estimated by the indicators of the cluster itself: profitability, susceptibility to innovation, financial flows, etc. In addition, the desire to enter a particular cluster of a particular small firm can also be viewed as an indicator of the popularity of the cluster.

As indicators of the effectiveness of the cluster can be the presence or absence of arbitration courts, public associations working on the principles of self-regulation, forms of trust between the cluster members, transparency of commercial information within the cluster.

These indicators, in our opinion, can form the basis for developing criteria for assessing the effectiveness of the operation of clusters of enterprises, including industrial districts, in terms of globalization and international competition.

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GLOBAL TRENDS IN ADVERTISEMENT INDUSTRY FOCUSED ON CHILD SPECTATOR

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Abstract. The child spectator represents a sensitive group which could by easily influenced and manipulated. There are two ways of how children are incorporated into advertisement, firstly as a target group and secondly as performers. Both ways are very well and frequently used by the sponsors of advertisements, because it generally holds that children can influence the most purchasing habits of their families. To increase better sales marketing companies are focusing advertisements on children and adolescents. Advertisement is powerful instrument of marketing communication, which has global impact. The child spectator is sensitive. It represents vulnerable group, which requires fair legal protection. Marketing (media) industry is not always adhering to the advertising ethics. It is generally known that for the manufacturers and retailers child appropriate marketing objective, is not only because of inexperience and trustworthiness but also because that in childhood is loyalty to the brands and products easily build. This article is occupying with advertisements, which are focused on children spectators. Again it is very known that media are one of the most important factor of the present world. In the battle of emplacement and sale of products marketing experts are often using various effects of advertisement, most often is used consumers credulity. This is the main reason why we will be looking with specific examples of ethics in the advertisement.

Keywords: child age, advertisement, marketing, media, ethics, responsibility

JEL Classification: F60, J13, M31

1. Introduction

Media and advertising have become a vital part of our lives. Day-to-day interruption of programs (in public television broadcasters as well as in commercial media) by advertising messages and slogans has forced us to get used to it and consider it natural, or even requisite. Children are the most sensitive recipients of advertisement. They are incorporated into advertisement either as a target group or performers. Advertisers use both ways gladly and often because it is generally valid that children can influence purchasing habits of the family in the most significant way. It is easy, all that is required is to arouse desire for an offered chocolate, chewing gum or a scooter. Advertisement aimed at children is very specific. The reason for this is mainly specificity of the target group, compared to adults children are more susceptible and more easily influenced by advertisement. The smallest children are already becoming consumers, their common features being manipulability, vulnerability, naivety and enthusiasm for anything. Due to lack of experience children are not capable of critical

thinking and therefore do not see a clear line between fiction and reality (Vysekalová & Mikeš, 2010). Advertisement and media influence person's identity, impose their ideas of "values and quality of life". Advertisement for children is the most controversial, "child's value system has not yet been created and therefore it is unable to address information from advertisement critically. The child (of a preschool age) is not capable to distinguish fiction from reality or advertisement from the main program, or does not understand an actual function of advertising communication. "We approach media literacy in the same way as the outcome of media education, i.e. the acquisition of media-related abilities, knowledge and skills. (Petranová et al., 2017)." The child recipient not only adopts patterns of behavior but also fully trusts information stated in an advertisement" (Rankov, 2002). Therefore, it is necessary to teach children media literacy, which is aimed at raising awareness about different forms of media news that we encounter. It is supposed to help children and adults to understand how media can filter their perception, form popular culture and influence personal choice. It forms critical thinking and creative skills in problem solving and should make us more sensible consumers and information creators (Šupšáková, 2016).

2. Marketing and advertisement

"Current period is characterized by ongoing process of globalization, development of information and communication technologies and progress of materialization of knowledge from scientific and technical developments. (Matúš & Martovič, 2016)." Nowadays, marketing and marketing communication play an important role in transmission of information from seller to consumer. Therefore, marketing communication uses tools of communication mix consisting of advertisement, sales promotion, PR and personal selling. Young people are growing up in a digital culture characterized by information technologies. Daily, they are surrounded by the newest innovations of the present times. Through Internet and mobile phones they are able to carry out their work at any place. "Besides the role a celebrity plays in commercial, the final execution as a part of advertising creative strategy can be considered as one of the most important determinant of effective advertising communication (Mikuláš & Svetlík, 2016)." They are not bound to a workplace, they explore social networks in an on-line environment and create communities there. These are the main characteristics of an environment where Generation Y is operating and developing. The main objective of a modern marketing is to use these natural and autonomous abilities of human mind and derive maximum position in the mind and heart of a customer (Ďurko, 2014). Traders and PR managers look for means to succeed in approaching the youngest generation (Lendel et al., 2015). Because, in this paper, we address mainly advertising, the definition of this term is necessary. "Advertising represent any form of non-personal presentation and promotion of sales of products, services or ideas carried out by an identifiable sponsor (Matúš, 2011)." The origins of the word "reklama" come from lat. r*eclamare* – cry out, call again, and represents a specific kind of public communication. Its goal is to inform the public about products and services and offer them (Gregová et al., 2005). According to Paul Smith (2000), an advertisement has a unique quality to compress a great amount of information into a short advertising spot full of emotion. "Advertising is a non-personal form of communication, where different subjects address their current and potential customers through various media with an objective to inform and persuade them about utility of their products, services or ideas. Brands are valuable, fundamental and essential. Branding is a lifestyle. (Kusá & Karaffová, 2016) Brand, product line mark or distributor's mark are often supplemented on packages with another symbols, so-called functional marks. (Ďaďo &

Slezáková, 2016).It provides an efficient and fast method to address the customer (Přikrylová & Jahodová, 2010)."

3. Ethical self-regulation of advertising and Advertising Standards Council

People operating in advertising industry know that for an advertisement to reach its customers, it cannot be misleading, discriminating or degrading dignity of a recipient. Media can represent means of a positive support of cultivation of child's and young person's quality of life or can be a tool of disruption or even obstruction of a positive development of an individual (Kačinová et al., 2014). As (Hanuláková 2002) states, the advertising industry itself actively participates on its own regulation and this process is called self-regulation. Since 1991, European Advertising Standards Alliance (EASA), based in Brussels, has been operating in an area of advertising. "For advertising it is nowadays common to cross boundaries of politeness, good taste or social norms. (Sedlaková, 2017)"

Slovak Advertising Standards Council (ASC), an advertising self-regulation authority in Slovakia, has been its member since 1995. Self-regulation complements legal regulation by adding ethical rules that the advertising industry has voluntarily committed to comply with, it is not a substitution for legislation in any ways. The main purpose of ASC is, by self-regulation, to secure and promote dissemination of honest, appropriate, decent, legal and truthful advertising in the Slovak Republic (ASC, 2007). As (Hanuláková, 2002) claims: "The Advertising Standards Council carries out the following activities: issues codes of ethics of advertising practice; through the Arbitration Commission decides the questions of advertising ethics; conducts information and educational activities; represents its members in EASA; cooperates with state authorities, courts, associations and other institutions in the Slovak Republic and abroad on issues of advertising ethics; it carries out other activities leading to fulfillment of its objective and it defends interests of advertising bodies towards state and other institutions. It initiates requested arrangements and regulation of relationships incurring while providing promotional services related to this activity." As (Hanuláková, 2002) adds, the first Code of Ethics was adopted by the Advertising Standards Council shortly after its establishment in March 1995 and has been amended several times since. The ASC brings together subjects actively involved in the process of marketing communication – advertiser associations, advertising agencies, media and businesses utilizing promotion through advertising. For the purpose of assessing compliance of advertising with the Code of Ethics, the ASC has established an independent external 12-member body – the Arbitration Commission. It consists of competent experts from the field of marketing communication, which the Council considers to be individuals with inner integrity, able to assess advertisements competently and independently. The members of the Commission have committed to comply with the Code of Ethics – Ethical Principals of Advertising Practice and to uphold reputation of advertising. The current wording of the Code, Rules and Articles of Association of the Arbitration Commission was adopted by General Assembly on 19th of April 2015.

Currently, EASA brings together 24 self-regulatory bodies from 22 European countries and 4 non-European self-regulatory organizations from Canada, New Zealand, South Africa and USA. Since 2001, it also connects a network of organizations representing advertising industry – European associations of media, advertising agencies, and also the World Federation of Advertisers. EASA coordinates cooperation of national institutions and transnational associations. It has developed a system of so-called cross-border complaints,

where a complainant from one country can complain about an advert being disseminated in another country. The goal of EASA is to represent the interests of marketing communication in the process of European legislation creation (Advertising Standards Council).

International Chamber of Commerce (ICC) is a body which, inter alia, is supposed to update marketing communication codes in such a way that would reflect socially sensitive issues. All forms of marketing communication around the world should fulfill requirements of the ICC Code of Advertising and Marketing Communication Practice. This code contains a part where the care for communication aimed at children is described. The code also involves some chapters regarding specific products like food and beverages (Brabec, 2015).

4. Methods

Empirical part of this study addresses analysis of instances of advertising communication which have been dealt with by the Arbitration Commission of the Advertising Standards Council. Research sample consists of findings of the Arbitration Commission issued and published in the period of last 12 months (concretely from 1st January 2016 until 1st January 2017) on an official website of the Advertising Standards Council (http://www.rpr.sk/sk/nalezy). The term "finding" in the context of this study means a written assessment officially issued by the Arbitration Commission, where the members of the Commission confirm whether the concerned advertisement is or is not in conflict with provisions of the Ethical Principles of Advertising Practice. Except for an actual text of the decision, each finding also incorporates a detailed written statement of reasons. For the purposes of this study we have reduced our research sample to adverts about which a complaint have been submitted to the Arbitration Commission and which, at the same time, could represent a potential threat to the minors due to their content and form. The main research method is a quantitative content analysis of concrete findings of the Arbitration Commission of the Advertising Standards Council, and also a content analysis of the particular advertisements handled in the findings.

5. Results

Quantitative content analysis was aimed at data concerning concrete adverts. We were investigating the products the corresponding advert was oriented at, or the services it promoted, what complaints were submitted about it, what was the final decision of the Arbitration Commission, which provisions of the Code of Ethics were breached and what was the concrete conflict between the particular advert and the Ethical Principals of Advertising Practice.

By the quantitative content analysis we have found out that in the period of twelve months from 1.1.2016 to 1.1.2017, the Arbitration Commission had addressed 66 complaints. The complaints involved television adverts and radio spots, social network Facebook, youtube channel, printed leaflets delivered to mailboxes and billboards. The promoted products came from domestic and foreign companies and were related to music, clothes, beverages, furniture, contests and pawn shop services. We discovered that in case of 14 advertisements a potential threat to minors was posed. As many as 11 adverts, analyzed by the Arbitration Commission of the ASC due to a suggestion submitted by a natural person, contained sexist remarks and were inappropriate for minors (four of them were assessed as a negative finding). Two adverts evoked fear in minors and one advert influenced speech development of children in a negative way (the mentioned adverts were assessed as a negative finding). From 14 advertisements, 7

were assessed as a positive finding and the advertisers were asked to change, modify or avoid further dissemination of the advertisement, 7 adverts were assessed as a negative finding (three advertisements for underwear, one promoting erotic services, one advert for music event, one for furniture and one advert selling a sweetened beverage). From 14 advertisements threatening minors, 4 were in a form of a billboard, 4 in a form of leaflets and three were outdoor advertisements. One advertisement was published on social network Facebook, one as an advertising campaign and one as a television spot. In Table 1 we bring an overview of 14 mentioned advertisements, which were addressed by the Arbitration Commission of the Advertising Standards Council, related to potential threat to minors. To ensure clarity we state advertisement title, advertiser, medium through which the advertisement had been disseminated, Arbitration Commission finding and in case of a positive finding we stated the provision of the Code of Ethics for Advertising Practice.

Table 1: Overview of the advertisements with their title, medium, Arbitration Commission finding and its provision

advertisement title	advertiser	medium	finding	Provision of the Code of Ethics for Advertising Practice
Pawn shop BREVA	BREVA, s. r. o.	Leaflet delivered to mailbox	positive	Article 10 (6) and Article 11(1) (b) and (e)
Pawn shop BREVA XVI.	BREVA, s. r. o.	Leaflet delivered to mailbox	positive	Article 10(6) and Article 11(1) (b) and (e) in conjunction with Article 11(3)
Pawn shop BREVA XVII.	BREVA, s. r. o.	Leaflet delivered to mailbox	positive	Article 10 (6) and Article 11(1)(b) and (e) in conjunction with 11(3)
Pawn shop BREVA XVIII.	BREVA, s. r. o.	Leaflet delivered to mailbox	positive	Article 10 (6) and Article 11(1)(b) and (e) in conjunction with Article 11(3)
Bikini & Swimwear Relleciga 2016	RELLECIGA EUROPE/GLET T, s. r. o.	video posted on Facebook Fan page	negative	
Babylon Erotic Night Club – special offer: prices from 50 €	Babylon Erotic Night Club	billboard	positive	Article 11(1)(b) in conjunction with Article 11(2)
Calzedonia – Italian beachwear (Adriana Lima)	CALZEDONIA SLOVAK s. r. o.	outdoor advertisement	negative	
Do you want to see more?	FINES, a. s.	billboard	negative	
Iron Maiden - concert 2016		billboard, leaflet	negative	
We are looking for rock (h)tits	GES Slovakia, s. r. o.	advertising campaign	positive	Article 11(1) (a), (b), (c) and (e)
TEZENIS - Rita Ora 2016	CALZEDONIA SLOVAK s. r. o.	outdoor advertisement	negative	
Eros Night Club – Sunday for 35 €	EROS NIGHT CLUB POPRAD	billboard	positive	Article 11(1) in conjunction with (2) and (3)
Night Club KOTVA	Salon KOTVA	outdoor advertisement	negative	
Fofola	Kofola, a. s.	TV spots	negative	

Source: own elaboration

In Table 2 we bring an overview of promoted products/services and the subject of complaints as well as the number of advertisements promoting given products.

Table 2: Overview of advertisements threatening minors, promoted product/service and subject of complaints.

promoted product/service	number of advertisements	subject of dispute
pawn shop	4	nude woman's body
underwear	3	nude woman's body
offer of erotic services	3	nude woman's body
furniture	1	nude woman's body
radio contest	1	nude woman's body
beverage	1	lisping dog
music concert	1	visual evoking fear

Source: own elaboration

6. Positive findings

In November 2016, the Advertising Standards Council received complaints from several natural persons from districts of Banská Bystrica, Snina, Bratislava and Košice against leaflets delivered to mailboxes promoting services of a pawn shop. Complainants widely accuse the advertisement of using an image of a nude woman's body without any relation to the product. The advertisement displays a woman's body in a disrespectful manner, as a subject of consumption and pleasure, disparaging dignity of women. The complainants also state that the means of distribution of the advertisement by a form of delivering it to the mailboxes enables children and minors to come into contact with this advertisement and possibly gain a false impression about women's worth and the advertisement could threaten their mental development, and is sexist (in a short period of time, four complaints were submitted against as many as four advertisements of the same advertiser). The Arbitration Commission addressed three advertisements presenting erotic services. Two of them (Babylon Eotic Night Club and Eros Night Club) were assessed as positive findings. In case of the first advertisement, the complainant – natural person from the district of Bratislava submitted the complaint in June 2016. He thought that the advertisement's visual presented the model in a vulgar, lascivious position and violated general norms of decency and good manners. Billboard was situated near the Petržalka's embankment, daily used as a walking place for parents with children. In case of the second mentioned advertisement there were two complainants (natural persons from the districts of Prešov and Levoča, June 2016). They both found the advertisement having an erotic content. They pointed out that its visual could have a negative impact on children and youth as, in one case, it is situated close to a school and a church. One of the complainants considered the way of presentation of the models to degrade value of women. In July 2016, the Advertisement Standards Council registered two complaints from natural persons from Bratislava district against an advertising campaign of the Radio Antenna Rock. Through this campaign the radio asked its fans and listeners to send photos of women's cleavages. Both complainants found the advertisement sexist, objectifying, using woman's body or its parts to attract attention to services of the radio. The advertiser only asks for some parts of female body (cleavage) which are sexually attractive. This way, he anonymises, depersonalizes and reduces a woman to a "piece of meat". The contest is gender stereotyping and creates an impression that the most important attribute or quality of a woman is her looks, concretely cleavage. The complainants are of an opinion that this way of promotion is disrespectful towards female listeners and fans of the radio and shows an overall lack of respect for women.

7. Conclusion

Our analysis proved that despite many measures taken by the state as well as advertising organizations, advertisements threatening children are still getting into various types of media (leaflets, billboards, advertising and television spots, printed posters or social networks), and therefore are easily accessible by minor users. Exposed female body and problem of sexism belong to the most common subjects of dispute. Every media user can submit a complaint against an advertisement – in case of contact with such advertising he must notify a competent authority – Advertising Standards Council – by completing and sending the complaint form (on-line or via post).

By a quantitative content analysis we have found out that the Arbitration Commission registered 66 suggestions in the period of twelve months from 1.1.2016 to 1.1.2017. We have determined that 14 advertisements were potentially threatening to minors. Seven advertisements were assessed as positive findings (four adverts for pawn shop services, two promoting erotic services and one advertisement promoting radio contest). The advertisers were urged to change, modify or avoid further dissemination of the advertisement due to violation of certain provisions of the Code of Ethics for Advertising Practice. Seven complaints were assessed as negative findings (three underwear advertisements, one advert promoting erotic services, one promoting a music event, one selling furniture and one advertisement for a sweetened beverage). In terms of media usage, the advertisers of the analyzed 14 advertisements used leaflets delivered into mailboxes and billboards most often (both 4 times) and outdoor advertisement (3 times). Social network Facebook, advertising campaign and TV spot were only used to communicate an advertising message once. In 12 adverts (85,7%), an exposed woman's body was the subject of dispute, in case of the remaining two adverts a lisping dog and a visual evoking fear in children were the subjects of dispute.

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THE INFLUENCE OF CAPITAL STRUCTURE ON THE PERFORMANCE OF AN INDUSTRIAL ENTERPRISE

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Abstract. Deciding about enterprise capital structure is always rated among the enterprise´s strategic decisions. It is given especially by two reasons. First, decisions about capital structure has a significant meaning for good functioning of an enterprise, and also because structure change demands quite a long time for implementation. With regard to the impact of a decision, it immediately influences the enterprise´s ability to generate profit. Concerning change implementation, we may talk about a period of three and more years. Capital structure may be optimized based on recommendations for industrial enterprises, or we may calculate the impact of capital structure change on enterprise profit. However, it is necessary to consider the irregular capital price in relation to enterprise indebtedness. As enterprise indebtedness grows, not only foreign capital costs grow, costs on equity grow as well. It may be even assumed that costs on equity will grow faster in such a case – owners undergo a greater risk than creditors. The aim of this contribution is to analyse the indebtedness of a sample of industrial enterprises, and subsequently their ability to generate operating profits.
Thus, we have been looking for a turning point, which determines the level of indebtedness at which the enterprise does not use the positive effect of financial lever and at the same time, the effect of financial lever is not yet negative. The data package will contain financial statements data from industrial enterprises in the Czech Republic. The output is a recommendation of capital structure for industrial enterprises in today´s globalized world.

Keywords: capital, capital structure, costs on capital, performance of an enterprise

JEL Classification: C15, D24, G31

1. Introduction

Capital structure can simply be characterized as a certain structure of a company's resources from which the company's property has been created. Companies mainly use these resources, which we sub-divide into equity and outside capital, to finance their assets (Petrách & Vochozka, 2016). The characteristic of equity is that it belongs directly to the proprietors, while outside capital is owned by creditors. Zhang & Yang (2015) state that some businesses employ only equity in financing, and others, because of their low capital level, have no option but to use outside sources. According to Strýčková (2015), however, it is generally known that the use of outside capital is cheaper, but on the other hand, with it rises the occurrence of company debt.

According to Sharma et al. (2010), it is very important that the capital structure used for financing is optimal. The optimal capital structure is a structure that acquires capital at

minimum cost. Capital formed in such a way allows the maximization of the market value of the enterprise (Agliardi et al., 2013). Narimanovna (2012) also notes that under current market conditions, optimization of the capital structure can occur at lower investment costs. This will bring benefits for business owners. To succeed, however, it is necessary to know the principles and methods for assessing individual components of the company's total capital. According to Sakson & Cikste (2011), the following factors need to be taken into consideration in order to optimize capital structure: tax legislation, systematic risk management for the environment, possible conflicts of interest, asset quality, availability of funding. Du & Liao (2008) emphasize that the issue of optimal capital structure is a major problem in the area of corporate finance, or more precisely in the overall financial strategy. According to Chu (2012), a company's financial strategy is based both on optimizing the asset structure and on optimizing the already mentioned capital structure, which focuses primarily on maximizing the company's goals and on continuously increasing the economic value added for the enterprise.

At present, the economic value added (EVA) serves as a very important and effective value measure that allows the assessment of the overall performance of a business. The significance of the value lies, according to Stehel & Vochozka (2016), in whether the company is productive and profitable, in which case value is created and developed. The main idea of this indicator is necessity, which emphasizes invested capital that should have a higher added value than the cost of that capital (Bluszcz & Kijewska, 2016). Bluszcz & Kijewska (2016) further state that the EVA indicator is dependent on the amount of invested capital (IC) and the economic spread (ES). The economic spread is expressed by the weighted average cost of capital (WACC) and return on invested capital (ROIC).

$$EVA = NOPAT - WACC * C \quad (1)$$

where: NOPAT – net operating profit after tax, C – total long-term capital invested, WACC – weighted average cost of capital.

According to Šalaga et al. (2015), an enterprise generates value when net operating profit after tax (NOPAT) is higher than the cost of capital. One of the other options for measuring the overall performance of an enterprise is the method of artificial neural networks, which has been becoming increasingly prominent in today's modern world.

Guresen & Kayakuthula (2011) characterize a neural network as a computational model that is used in artificial intelligence. They also state that the definition of neural networks (NN) is carried out by experts in the field of artificial intelligence, computer experts, scientists and mathematicians. According to Bas et al. (2016), neural networks are composed of artificial neurons that are interconnected. Together they transmit signals, which they transform through certain transmission functions (Vochozka et al., 2017). A neuron is characterized by an arbitrary number of inputs, but the output is only one. Neural networks have applications in various areas (Guresen & Kayakutlu, 2011). According to Vochozka et al. (2017), however, it is advisable to use these networks for very complex operations that cannot be identified analytically. They are therefore primarily used to model very difficult strategic decisions. Although neural networks often outperform traditional statistical methods, they have some disadvantages. They are not good at explaining how they reach their decisions or their performance can be hindered due to failures in the use of training data – using smaller data sets (Vochozka et al., 2017).

The aim of this paper is to analyze the indebtedness of a sample of industrial enterprises and subsequently their ability to generate revenue. In relation to the objective of the paper, it

is also appropriate to provide a hypothesis, which we will be operating with: "The return on equity of an enterprise is highly dependent on the degree of capital indebtedness."

2. Methods

If we analyze the aim of the article more closely, we come to the conclusion that we will primarily be analyzing two quantities. The first quantity is the variable that characterizes the company's capital structure. The second is the variable that determines the performance of the company. We will consider all the company's payable sources as capital. Therefore, we do not take the resources the company uses free of charge into account. We then determine the structure relatively easily. We can use two or three ratios. The first is the share of equity and total capital. In addition, we can use the share of debt and equity, and finally the share of debt and total capital. However, the choice of a specific indicator of capital structure must depend on the indicator with which we will measure the performance of the business.

There are several alternative ways available to measure enterprise performance. One can be some form of profit (EAT, EBIT, EBITDA, etc.). We can use value growth for shareholders (i.e. growth of free cash flow to the equity), or value growth for investors (i.e. growth of free cash flow to the firm). In relation to the objective of the paper, however, the most advantageous option seems to be the use of a ratio indicator. An interesting indicator in this context is the return on equity (hereinafter referred to as ROE). Therefore, if we return to the indicator of capital structure, we must necessarily choose indebtedness of the company as the independent variable (i.e. the share of debt and total capital) and ROE as the dependent variable. Apart from the fact that they are share indicators, they can help identify the company debt ratio from which the leverage effect starts acting positively. However, the premise is that the ROE will be heavily dependent on the company's debt ratio, or to state it more simply, by whether the ROE will increase with the growth of the company's debt. The analysis will be carried out on a sample of 1,000 industrial enterprises. Specifically, we will need the data from financial statements – profit and loss accounts and balance sheets of the surveyed business models.

In order to meet the objective of the article, it is necessary to divide the whole process into two stages. Firstly, we will verify the stated hypothesis, which means we will examine if there is an interdependence between company indebtedness and ROE. If such a dependence exists, we will measure its size. In the case that we are able to confirm a significant dependence between the quantities, we will define the parameters of the regression curve. On the curve, we then determine the point at which the leverage effect does not work and the intervals in which the leverage effect acts negatively or positively. Doing so will fulfil the aim of the paper.

In the first phase, however, we need to adjust the data. It may be assumed that values could be extremely deviated from the ideal state (both ROE and indebtedness). In the case of ROE, this may be due to, for example, the enterprise having a negative equity and simultaneously generating loss. The ROE will optically appear positive. Unfortunately, the telling value of such an indicator is absolutely null. In the case of debt, there can also be a high value caused by, for example, enormous over-indebtedness of the company. For this reason, only companies whose ROE is in the interval of <-2,2> and whose indebtedness is simultaneously in the interval of <0,2> will be subjected to analysis. We will use two types of software for the analysis. Specifically, it will be Statistica of the company Dell and Microsoft's Excel.. We will use two tools within the Statistica software. Firstly neural networks (specifically

regression) and subsequently regression analysis. In the case of the Excel software, we will use regression analysis. All three tools will be able to calculate the interdependence of the evaluated variables and then to also determine the parameters of the regression curve. Any differences will be settled at the conclusion of the article.

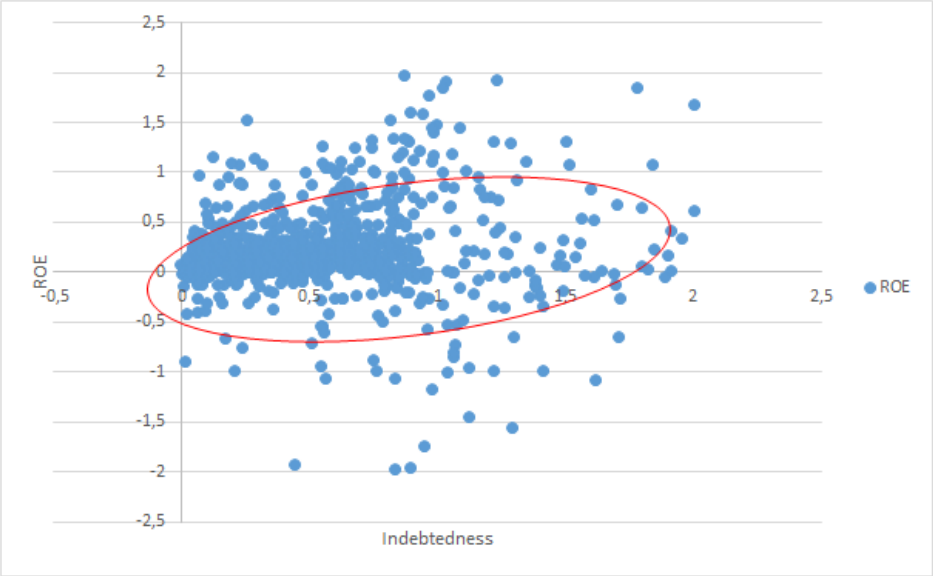
First, dependency and regression curve parameters will be set using neural networks. We will generate multilayer perceptron networks and neural networks of radial basis functions. Indebtedness will serve as the independent variable. We will designate ROE as the dependent variable. We will divide the data file (after removing extreme values) into three files - training, testing, and validating. The first group will contain 70% of the input data. We will generate neural structures on the basis of the training set of data. In the remaining two sets of data, we will always leave 15% of the input information. Both groups will allow us to verify the reliability of the found neural structure, or more precisely, the found model. We will generate 10,000 neural networks. We will preserve 5 of them with the best characteristics. In the hidden layer, we will have at least two neurons, at most 20. In the case of the radial basis function, there will be at least 21 neurons in the hidden layer, at most 30. For the multiple perceptron network, we will consider the following distribution functions in the hidden layer and in the output layer: Linear, Logistic, Atanh, Exponential, Sine.

We will leave the other settings on default (in compliance with the tool ANS – automated neural networks). Next, we will perform a correlation and regression analysis using the Regression Analysis tool found on Statistica, then with the help of software Excel. In both cases, the output will be a curve passing through points on the graph (the independent quantity will be indebtedness and the dependent quantity ROE). In addition to the graph, we will obtain correlation coefficients and regression curve parameters.

3. Results

First, the data file was freed from the extreme values found in the file. Indebtedness in the interval <0,2> and at the same time ROE in the interval <-2,2> was reported by 864 companies from the sample surveyed. This means that extreme values were presented by 13.6% of the enterprises. The graph in Figure 1 graphically illustrates the distribution of values reported by enterprises that further continue in the analysis. From the cluster of values, it is clear that values above the set interval are extraordinary, and we can state that they are extreme.

Figure 1: Distribution of values of the surveyed enterprises



Source: Author

In the graph, we have marked the shape of the cluster field. In this case, we emphasize that the ideal form would be a straight line. However, the shape of the cluster created by us is rather oval. It is thus possible to observe and optically predict an eventual dependence. When we subject the data, specifically the ROE, to at least a basic statistical survey, we find that the largest number of businesses has a ROE at around the value of 0, more precisely in the interval <-0,25;0,25>. Consequently, correlation and regression analysis was performed with the help of neural networks. An overview of the generated and preserved neural networks is given in Table 1.

Table 1: Preserved neural networks

	Network name	Train. perform.	Test. perform.	Valid. perform.	Train. error	Test. error	Valid. error	Train. algorithm	Error function	Activation hidd. layer	Output act. func.
1	RBF 1-27-1	0,3246	-0,0124	0,2549	0,0871	0,1096	0,1115	RBFT	Sum.sqr.	Gauss	Identity
2	RBF 1-25-1	0,3140	0,0049	0,2776	0,0878	0,1018	0,1103	RBFT	Sum.sqr.	Gauss	Identity
3	RBF 1-22-1	0,2712	0,127	0,3398	0,0902	0,0948	0,1065	RBFT	Sum.sqr.	Gauss	Identity
4	RBF 1-23-1	0,2808	0,0763	0,3052	0,0897	0,0982	0,1087	RBFT	Sum.sqr.	Gauss	Identity
5	RBF 1-28-1	0,3008	0,0656	0,3433	0,0888	0,1053	0,1063	RBFT	Sum.sqr.	Gauss	Identity

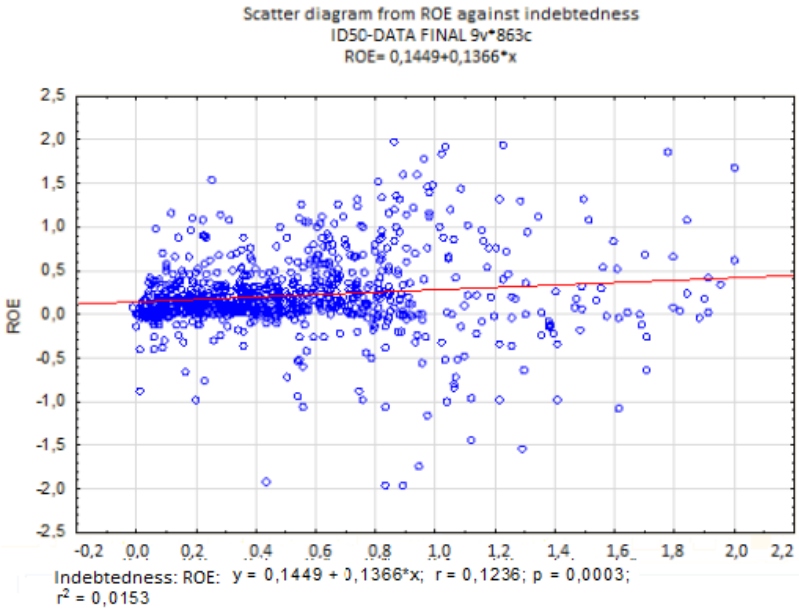
Source: Author

It is evident from the table that all preserved networks are neural networks of the radial basis function. They all use the Gaussian curve as the activation function of the hidden layer and identity as the activating function of the output layer of the neurons. All were determined using the method of least squares. However, they display a different number of neurons in the hidden layer and a different performance of individual data sets. Network performance is determined by the correlation coefficient of the set of data used to create the network. In the training and validating sets of data, this can be found at the level of 0.3. We can thus talk about moderate ROE dependence on the indebtedness of the enterprise. However, the performance of the testing data set is very weak. It ranges from -0.01 to 0.127. That, on the

contrary, denies all dependence. We provide analysis of ROE sensitivity to company indebtedness for additional information. 1. RBF 1-27-1 (indebtedness 1,078619), 2. RBF 1-25-1 (1,074066), 3. RBF 1-22-1 (1,105615), 4. RBF 1-23-1 (1,081040), 5. RBF 1-28-1 (1,083914), Mean (1,084651). The results shows that the best overall performance is given by neural network number 3, i.e. RBF 1-22-1. We are looking for the network that has the highest ROE dependence on business indebtedness. However, even this performance does not signify that the dependence is remarkable. Therefore, we will continue to the results obtained by the second tool – Regression Analysis of Dell software.

We can find everything crucial in Figure 2. The graph in the figure provides not only the distribution of the results of individual enterprises, but also pays attention to the regression curve, the correlation coefficient and regression curve parameters (in this case linear function). From these values, a minimum ROE dependence on the company's indebtedness is obvious. The exact result is 0.1236, which is completely insufficient in relation to the fulfilment of the objective of the article.

Figure 2: Graph of ROE dependency on company indebtedness (linear function)

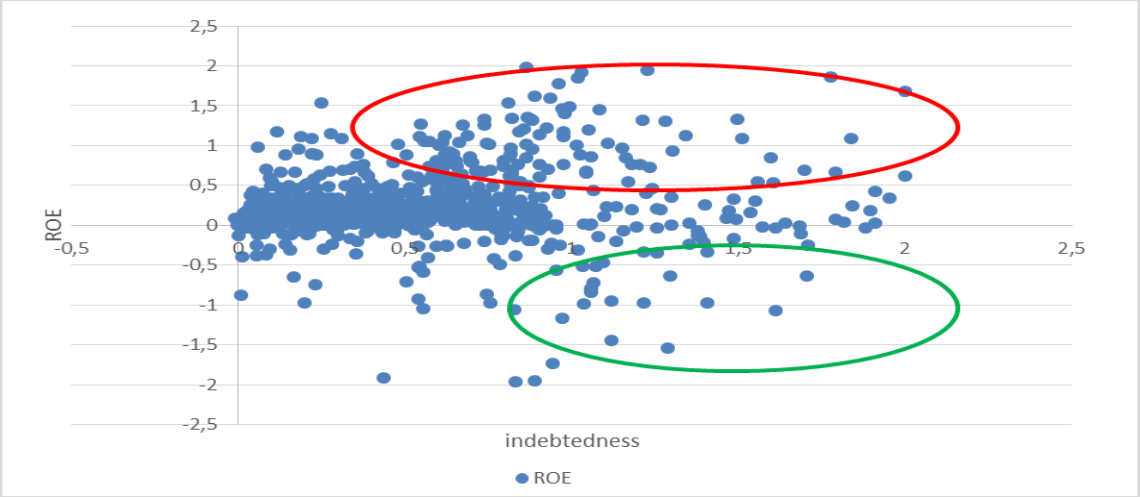


Source: Author

Other types of curves were used, for example the curve created by the method of least squares using weighted distances. Unfortunately, the correlation coefficient is negligible even in this case. To verify the results we have found so far, we moved on to the analysis performed by the software Excel of the company Microsoft. Unfortunately, neither this result brings any interesting shifts. In this case, the correlation coefficient is also 0.1236. On the basis of the analyses carried out, we can state that the established hypothesis was refuted. We can state that the return on equity of an enterprise is not dependent on the degree of capital indebtedness within the set of investigated industrial enterprises.

In spite of the results, however, let us turn our attention back to the set of companies surveyed (see figure 3 below).

Figure 3: Set of enterprises surveyed



Source: Author

The picture shows that a particular group of companies is definitely impacted by the leverage effect (either negatively or positively). Two sets of data are highlighted in the image. In the case of the data set marked red, the leverage effect is certainly positive. The reason is, for example, a large market and a large market potential of the company's products. In the case of the group of companies marked green, the leverage effect is certainly negative. Reasons may be many. For example, the company is over-indebted and the cost of foreign capital is, in this case, enormous. In any case, both enterprise groups are worth a stand-alone investigation. It is suggested not to survey such a universal set of data, instead we can focus our attention further on the interval of indebtedness. For example, if we investigated the dependency of companies with a level of indebtedness in the interval of <0,9;1,0>, we could expect more appropriate and more practically manageable results.

4. Conclusion

The aim of the paper was to analyze the indebtedness of a sample of industrial enterprises and subsequently their ability to generate revenue. In the article, we primarily investigated the dependence of ROE on the company's indebtedness and investigated the leverage effect. All of the analyses that have been carried out eventually showed that there is no significant dependence of ROE on the company's indebtedness in the set of surveyed industrial enterprises. Values ranged below the set threshold. The regression analysis made using neural networks was probably the closest. Nevertheless, even in this case, the correlation coefficient was not significant. The results show that the file contained data that was interesting for the purpose of the article. Still, they did not affect the results enough to be practically manageable. Therefore, it is suggested to limit the set of enterprises according to the debt ratio of the enterprises entering the analysis.

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EMPLOYMENT OF PEOPLE FROM DEVELOPING COUNTRIES – REGION LATIN AMERICA IN THE CZECH REPUBLIC

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Abstract. The aim of this paper is to analyse the current situation of the employment of Latino Americans in the Czech Republic and to come up with recommendations for the Czech employers how to deal in the best way with the management of their Latino employees. The theoretical part represents a literature review focused on defining developing countries of Latin America and presenting Czech statistics about the number of Latin Americans living in the Czech Republic together with the legal conditions of their employment. Last but not least, intercultural differences between Latin American countries and the Czech Republic presented by Hofstede Centre are introduced. The practical part is based on semi-structured interviews with twelve Latin American respondents who are employed in Czech companies. The first part of the interview is inspired by the R-STAR model for managing people, while the second part is based on questions about the cultural perception of Latino American employees in their Czech work. The results has shown that Latin Americans who come to work to the Czech Republic have professional skills and strong intrinsic motivation to perform their best in their job. However, it is necessary for the Czech employers to know how to stimulate their motivation and to provide them with convenient working conditions since their cultural perception of work may differ from the one of Czech employees. It is in the employer's best interest to be informed about the variety of cultural backgrounds of his Latino employees as it can contribute to creation of a synergic corporate culture.

Keywords: Employment, intercultural management of people, Latin American workers

JEL Classification: F60, J24, J61

1. Introduction

The paper deals with employment of people from third countries in the Czech Republic, focusing on people from Latin America. Malcolm Gillis in his Economics of Development (1983) says that all third world countries are developing countries and include all countries of Latin America and the Caribbean, Africa, the Middle East and Asia, excluding Japan.

The third world is a term mostly used in the second half of the 20th century. Although it has also been used recently, it is not so common in the research, as noticed by B.R. Tomlison in his paper called what was the Third World? (2003). Based on the British Library Catalogue entries, there were 654 books with the term third world published in 1975-1984 compared to 169 books published in 1995-2001. It is also quite difficult to find out an official list of countries of the third world, the concept of developing countries, considered synonymous with third countries, is more common.

Classification of developing countries: By the World Bank (The World Bank, 2016), the International Monetary Fund (IMF), 2016, and the United Nations Human Development Report 2015, account for economic activity per capita.

World Bank Classification sees this indicator as the only criterion. The IMF uses it as one of the three subsidiary criteria, and for HDI it is one of three index dimensions (Brezinova & Vrchota, 2015; Alpatov, 2016). Due to different criteria, the Latin American and Caribbean countries are slightly different. Although not all the Latin American countries are classified as developing countries according to the above-mentioned classifications, they are globally viewed as a developing region (Baresova, 2016). This is an area of uneven economic development, where both the economic and political process of regional integration is started all directions (Bielikova, 2016). Such path of integration helps the region to a more favourable position in the world economy and to overcome the economic, technological and social gap between the developing countries and the developed world.

Employment of foreigners in the Czech Republic in terms of legal regulation. The most important sources related to the employment of foreigners include Act No. 435/2004 Sb., on Employment, as amended, regulating mainly the conditions of admission of foreigners to the Czech labour market and the obligations of employers employing foreigners; and Act No. 326/1999 Sb., on the Residence of Aliens in the Territory of the Czech Republic and on Amendments to Certain Acts, as amended, which regulates Employee and Blue Cards as a type of residence permit for the purpose of employment (Antalova, 2016; Hyblova, 2015).

As reported (Volek & Novotná, 2016), there are two categories of foreigners entering the labour market by the employment law:

1) Foreigners who have the same status as citizens of the Czech Republic according to the Employment Act;

2) Foreigners whose entry into the Czech labour market is limited.

2. Methods

The aim is to analyze the current situation of employment of Latin American workers with Czech employers and suggest possible recommendations for employers to integrate such employees as much as possible into the working team and to stimulate their motivation so that they can perform the best work performance and contribute to the development of the company.

To compare the theoretical knowledge with practice, qualitative researches was preferred to quantitative research, mainly because of a limited number of respondents, and also because qualitative research is used to gain new opinions on issues that have not been discussed much. The qualitative research method was based on semi-structured in-depth interviews, the essence of which is open questions and question groups, not an inquiry or a questionnaire. Indeed, the method used has its own positive and negative aspects. Given that there were a limited number of interviewed people, the subsequent generalization might seem problematic, but the credibility of the information obtained is high and helps us to create a better picture of the issue.

Before the interviews, piloting was conducted to identify possible shortcomings in the clarity of the structure of the questions posed. Respondents were contacted using the "snowball" method and the reference method. This method involves social networking, i.e.

the respondents are asked, whether they know other respondents and would be willing to provide researchers with contacts useful for the research. The method is suitable for research of difficult-to-reach and small groups, and its advantages are simplicity, cost-less flexibility and efficiency.

Although there is no strict outline of in-depth interviewing, the basic four steps by Wildemuth & Zhang were followed: introduction, warm up, main interview, closure. The interviews were conducted in six months from September, 14th 2016 to march, 14th 2017. There were twelve respondents, ten men and 2 women. The respondents participated in 100%. The participants in the interview were a very narrow segment; they were Latin American workers working in positions requiring professional and university education in the Czech management environment. The age of the correspondents ranges from 27 to 43 years. The respondents work in Prague and České Budějovice. They come from Mexico, Venezuela, Peru, Ecuador, Argentina, Brazil, Cuba and Chile.

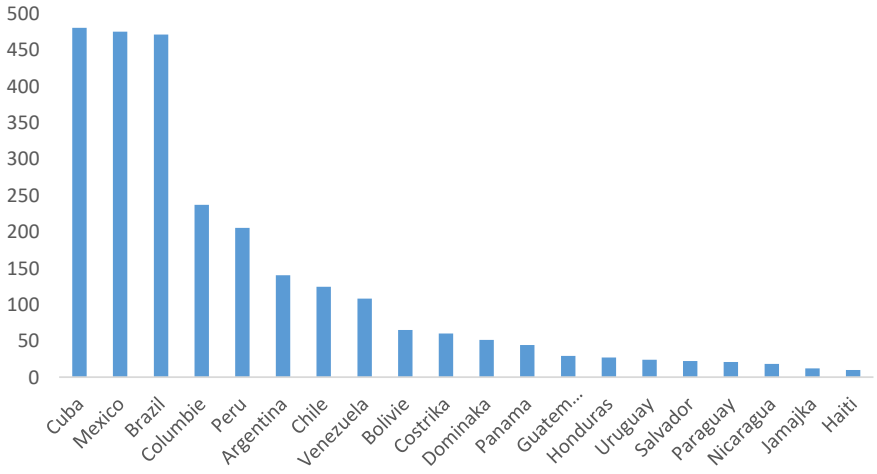
The in-depth interview was divided into two parts. The structure of the first part was based on the R-STAR model for human resource management. The acronym stands for R as Recruiting, S as Setting a target, T as Training, A as Appraising and R as Rewarding (Wursten et al., 2011). Therefore, the questions were divided into these topics, aimed at finding out how the worker's recruitment process was taking place, how well they worked and how well they were happy with the job. The second part of the interview scheme consisted of questions about working culture. It means both the working culture of the respondent and his perception of the Czech working culture and the way of HR management.

All the interviews, except for one, were conducted in Spanish, that is, in the native language of the respondents, to avoid barriers to understanding as much as possible.

3. Results

By Czech Statistical Office, the population of the Czech Republic was 10,558,524, as of March, 31st 2017. There were 473,516 foreigners, 2,640 of which were from the Latin America (Ministerstvo vnitra ČR [MVČR], 2016). Compared with the most represented groups of foreigners in the Czech Republic, the percentage of Latino-Americans is very small. As can be seen from Figure1, most of the citizens are from Cuba (480), Mexico (475), Brazil (471), Colombia (237), Peru (205), Argentina (140) and Chile (124).

Figure 1: Number of Latino-Americans in the Czech Republic as at 31.3.2016



Source: authors, based on Ministerstvo vnitra ČR, 2016

In general, the interviews revealed that the interviewees decided to work in the Czech Republic due to two main factors: own initiative due to personal growth and unfavourable political and economic situation in their native country, very often it was the combination of both factors. Personal and professional development as the main factor was reported by six respondents, the combination of professional development and the unfavourable political-economic situation was the reason for five respondents, and the very negative political and economic situation in the country influenced one respondent to the decision to work in the Czech Republic. Ten out of twelve respondents had two or more years of work experience in the field in which they work. Most respondents, except three, stated that the Czech Republic was not the primary destination for cross-border work, but Europe in general, one of the countries of the European Union. They chose Czech Republic because of an interesting job offer or non-employment in another EU country. Three respondents were looking for a targeted job in the Czech Republic as they had a relation to the country.

Eight respondents were classified as foreigners whose entry to the labour market in the Czech Republic is limited by the Employment Act. There were four respondents with the same status as Czech citizens according to the Employment Act.

Foreigners with limited access to the Czech labour market needed am employee card for work in the Czech Republic, which combines the type of work and residence permit. None of the respondents held a blue card. The processing of application took 2-5 months. Respondents requesting an employee card provided certified copies and translations of university diplomas and criminal records. The Czech employer provided these workers with an employment contract; in this case it was a contract for a future contract, which is one of the conditions for acquiring an employee card. In six out of eight respondents, the employer also provided a certified accommodation agreement, which is also one of the conditions for obtaining an employee card. Such accommodation agreement was transitional only, for the application purposes. As reported by respondent 2: "*I needed a confirmation of where I was staying. It was a document that provided the address of my future residence in the Czech Republic and had to be certified by a notary public. It was an official document provided to me by an employer. They have a corporate property they use as a temporary accommodation facility to meet the requirements, but in truth, I was not there even after arriving, because as I said, it was more just to meet the requirements for a work permit application*."

Of the twelve respondents, the employer provided eight respondents with assistance after taking up employment in the Czech Republic. This assistance consisted mainly of escorts to the foreign police, assistance in setting up a Czech bank account and a seasonal card for public transport. As far as the negative aspects of work in the Czech Republic are concerned, all respondents have identified language limitations. It is not always the case that the other workers speak English well, so work tasks can take longer because they do not understand well. Some respondents said that even though their colleagues speak fluent English, they still speak Czech and do not pay much attention to the Latin American colleagues. As reported by respondent 7: "*I am the only foreigner in the team and I think that my colleagues took their time to get used to being part of the team because they spoke Czech all the time. My colleagues are used to deal with foreign clients, so they speak English very well and they can easily switch to a foreign language, but they just talked Czech to each other, especially at the beginning. Now it's a bit better*."

Eight respondents worry that their colleagues are less communicative and three respondents even feel certain standoffishness of their colleagues against their person. Two

respondents said that in the Czech job they are bothered with too much anxiety or excessive precision at work.

Except for respondent 7 from Argentina, all respondents stated that in their Czech job they see a smaller hierarchical structure between a manager and an employee. This corresponds to the results of Hofsted´s study and the Power Distance Index (PDI). The higher the PDI index, the more significant is the dependence of managers and employees. It means the relations are more hierarchical. The Latin American countries, from which respondents come from, have higher PDI indices than the Czech Republic (Index PDI: Czech Republic = 57, Mexico = 81, Venezuela = 81, Peru = 64, Ecuador = 78, Chile = 63 and Brazil = 69; index values for Cuba are not available). With the declining PDI index, the preferences of the conservative style of organization rise before the authoritative task assignment "from the top". A total of five respondents from Mexico, Venezuela and Chile stated that their Czech supervisors were able to discuss work contents much more than was usual in their country. Respondent 7 from Argentina said her working relationship with the manager was not much different from her relationship with the manager in Argentina. Her Czech boss was said to be "latino" enough. It is a quality and close working relationship based on mutual trust. This also corresponds to the results of Hosfsted's study, where the PDI index for Argentina is only 49, unlike the other countries mentioned, and it is lower compared to the Czech Republic.

Eleven respondents feel a lower level of interaction in the Czech working group than in their country. If we look again at Hofsted's study, these facts could be related to the cultural dimension of Individualism versus Collectivism (IDV). Czech workers' culture is considered individualistic with the value of the index of individualism 58 while the culture of Latin American workers is collectivist (The higher the IDV values, the culture is considered to be more individualistic. Based on the low IDV index: Argentina = 46, Brazil = 38, Chile = 23, Ecuador = 8, Mexico = 30, Peru = 16, Venezuela = 12; index values for Cuba are not available). Regarding collectivist nationalities, , people are a part of wider groups since their birth, characterized by strong relations and loyalty within the group, which is also transferred to access to work and, above all, to the teams. The theory is supported by an opinion of respondent 10 from Chile: "*Here, people seem to be less communicative. My Chilean colleagues communicate much more, they are much more familiar, the socialize more at work. Here I feel that people tend to socialize with their family only, social life is done outside of employment, not within employment, as in Chile*."

Regarding the Uncertainty Avoidance Index (UAI), the values for Latin America and the Czech Republic are similar (UAI index: Czech Republic = 74, Argentina = 86, Brazil = 76, Chile = 86, Ecuador = 67, Mexico = 82, Peru = 87, and Venezuela = 73; index values for Cuba are not available). A high index of UAI can mean that workers have an internal urge to do good work, work hard and precisely.

Regarding the Indulgence versus Restraint Index (IND), Latin America is seen as indulgent, to the contrary of the Czech Republic (Index IND: Czech Republic = 29, Argentina 62, Brazil = 59, Chile = 68, Ecuador = n / a, Mexico = 97, Peru = 46 and Venezuela = 100; index values for Cuba are not available). People in Latin America have a more positive attitude to life, act impulsively and do not hinder the expression of joy in general. As reported by respondent 11 from Brazil: "*We Brazilians are considered to be one of the happiest nations in the world, and I think it is very much reflected in the work. In Brazil, it is common that we make friends at work. At work in the Czech Republic, I also made friends, but it was a long process, a very long process*."

Respondent 6, Peru: "*When I worked in Peru, we were as a family at work, we were celebrating a birthday party, we were entertained, we were joking ... It was a very joyous working period, a joyful life stage. Since you spend so much time at work, it's great to feel good about it. It's very motivating, giving you energy and you look forward to work*."

4. Conclusion

In the process of recruiting and integrating a worker, it is very important that the employer is ready and willing to communicate with a worker so as not to discourage them by the long and seemingly complicated process of applying for a work permit, which usually takes 2-5 months in the case of a foreigner in the territory of the Czech Republic, if the permission is necessary. For the application for work and residence permit, most often merged in the employee card, it is necessary for the employer to provide a future worker with a contract of employment for the future contract. If the employer has the means to do so, it is essential to provide a Latin American worker, with a transitional accommodation agreement in addition to a contract of employment, or at least help them to deal with it. The reason is that the employer does not have to make such efforts to get the accommodation contract, while a Latin-American worker has to go through a complicated process. Latin American workers are aware of this fact and are therefore very grateful for the provision of the accommodation contract by the employer (Olga, 2016).

As revealed by in-depth interviews, it is especially important for a Latin American worker to feel welcomed in the working team and to establish friendly relations with colleagues. Therefore, the employer should seek his / her ideal integration in a friendly and immediate form. The mentor, assigned to a Latin American worker during the first months of employment, seems to be a very good way to integrate a new employee (Lecuna, 2017).

As also reported in the interviews, Latin American workers are aware of the positive values of employment in the Czech Republic, which Czech employees may see as standard. The employer should use such point of view to increase awareness among Czech employees about the positive aspects of the operation of the company. This is, for example, a lower hierarchical structure, better availability of resources, focus on long-term goals, and shorter flexible working hours. It is essential for the employer to be aware of the cultural differences of the Latin-American workers that are reflected in their approach to work, because only if these differences are known and understood, the employee will be able to make better use of the workers and work better with them. (Beno, 2016) For example, this is the difference between the collectivist (Latin American) and individualistic (Czech) culture, which has been the most obvious of in-depth interviews. Collectivist values are reflected in the work environment, for example, by the preference of cooperation in the performance of tasks or through a moral relationship with the employer and the company (Bakytova, 2016, Gumucio, 2002).

Therefore, employers should not be afraid of these differences, but instead use them as they can interact positively with each other and create a synergistic working culture. The Czechs and Latin American employees can inspire each other with their working values. Latin American workers can inspire an optimistic approach to work, and Czech workers, for example, have a persistent approach to achieving long-term goals. In addition, in today's globalized world, it is very important for companies to have an international perspective and this can only be achieved through the employment of foreigners, i.e. the creation of a multicultural cultural environment.

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MANAGERIAL COMPETENCES IN THE MULTINATIONAL COMPANY

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Abstract. Human capital is one of the key factors in the competitiveness of an enterprise, because even the organizations themselves ensure that their managers are of high quality, tightening the managerial selection procedures, but also drawing attention to the competencies of already employed managers. Competencies reveal differences between average and excellent managers. In order for managers to achieve the desired results, they need to be able to behave in a manner consistent with the requirements of the work, so they are equipped with the attributes, abilities, knowledge, skills and experience that necessarily need such behaviour. The aim of the article is to characterize key managerial competences in the global company and following carrying out of a detail analysis of these key competences at individual managers. The requirements of the company director to managers´ competences were established. These requirements were achieved at three main competences; the level of the competences is seen as desirable for the company. Subsequently, the dependence between the actual level and the level of the subjects was tested, and the dependency level between the level test and the applied knowledge were compared. Most of 21 analysed competences demonstrated differences between the desired level and the real one by one level, this state is seen as tolerable without the necessity of development. Nonetheless, there are seven such competences in the company where the real state of competences differs from the desired state by two or more levels.

Keywords: manager, competency, development, competency level

JEL Classification: F60, M12, J24

1. Introduction

Competence is defined as such level of personal qualification of the manager corresponding to professional requirements and to demanding social background of the profession, including possible developments in the future (Belyaev, 2016). Competence is considered an optimal adjustment of the man's work capacity to do the profession including the social background (Brezinova, 2015; Boyko, 2016). That is why it is not possible to see it as existing forever or existing ad hoc; it should be seen as created quality of professional requirements of a person (Ponisciakova, 2016).

A manager is not made by the skill itself. The art of using it is important too (Hrehová, 2016). Although many organizations think that doing nothing is a major problem, there is a real possibility that that someone doing something wrong is a bigger problem. An incompetent manager has almost unlimited possibilities to be inefficient (Bencikova, 2016). Knowing what to do - professional competencies - are indispensable (Volek, 2016; Copikova, 2016).

Being competent does not mean that the manager knows how to do everything, but rather that he knows what to do, and how to do it. Even a genius manager who tries only on their own is determined for failure. A good manager knows their strengths and weaknesses and therefore they know what kind of experts to ask for help (Seemann, 2015).

While many managers are often recruited due to their professional skills, competencies are different from personal traits and leadership skills and should not be mixed up. We put too much emphasis on professional competence and not enough on personality (Salaga, 2016). And that got us into trouble. Traditional business schools excel in teaching competence, but they are usually unable to focus on the development needs of an individual to be able to use these skills appropriately (Spencer, 1993; Durana, 2016; Salaga, 2015).

2. Methodology

The main aim of the paper is to describe the key competencies of a manager in a multicultural enterprise, together with a detailed analysis of the key competencies of different managers.

The data was collected through field data collection, based on a qualitative research conducted with the general manager, managers and their employees, in a sample enterprise. This data collection was conducted from November 2016 until the end of February 2017. Several questionnaires were created for the research. Basically, these are three types of questionnaires. The first is filled in by the general manager. It determines the required level of competencies from the employees, i.e. managers. The second type is questionnaires dealing with the actual level of key competencies of the managers, these questionnaires are different for the individual managers; they were compiled based on their key competencies. The last type of questionnaires is questionnaires for the employees, where employees assess the level of key competencies of their manager. Further, the real level of competencies of the managers was analysed. The competency mapping of the Sanghi (2007) system was used to conduct the analysis, together with Národní soustava povolání (2016), Czech national register of professions. The real level was compared to the required (ideal) level. An external evaluation of the key competencies of the managers, within the 360° feedback system (Kubeš, 2008), was also carried out through interviewing the subordinate of the managers..

The research assesses the competencies of the following people: the manager of corporate controlling, the manager of quality, the ME manager, the HR manager, the UAP 2 manager, the UAP 4 manager and the PC & L manager. First, a questionnaire was prepared for the general manager, related to the required level of competence of the managers of the enterprise; see Appendix 1.

The general manager assessed a total of 15 soft competencies, 5 general professional competencies and 9 specific professional competencies, of each manager. Regarding soft and specific competencies, the rating scale was 1 to 5, with 1 as the least and 5 as the most. Regarding general competencies, the rating scale was 1 to 3, with 1 as the least and 3 as the most. Based on the general manager´s rating, the key competencies of the managers were analysed in order to choose three of them for a further analysis. For each of these three competencies, a level and knowledge test was done by a manager, revealing the actual level of competence compared with the required level. Subsequently, the employees of each manager assessed the status of all three competencies of their manager. Each manager was always rated by two employees. The task was to test the dependence between the actual level of managers and between the levels as seen by the employees.

The following H_0 hypothesis was tested: An actual manager level and the level according to the employees´ rating do not depend on each other. H_A suggested that: An actual manager level and the level according to the employees´ rating depend on each other.

Dependence testing was performed using Spearman's correlation coefficient. We also tested the dependence between the test level and the applied knowledge test level. The following H_0 hypothesis was tested: The test level and the applied knowledge test level do not depend on each other. H_A suggested that: The test level and the applied knowledge test level depend on each other. This dependency testing was performed using the Pearson correlation coefficient (Matalerz-Kodizis, 2016).

3. Results

Table 1 summarizes the data of the field surveys and questionnaires. The statistical analysis was carried out in relation to the data.

Table 1: Research data

Manager	Competence	Actual level	Level by employees	Level test	Test of applied knowledge
Corporate Controlling Manager	Economic and financial management and controlling	3.85	4.7	3.7	4
	Self-sufficiency	3.3	4.6	3.1	3.5
	Problem solving	4.05	4.6	4.1	4
Quality manager	Quality management	3.85	4.1	4.7	3
	Relations with clients	4.6	3.45	4.7	4.5
	Effective communication and presentation	3.4	4.2	4.3	2.5
ME Manager	Project management	4.55	4.55	4.1	5
	Load management	2.9	4.35	2.8	3
	Lifelong learning	2.65	4.55	3.8	1.5
HR manager	HR management	2.9	2.9	2.8	3
	Recruitment	2.7	2.4	2.4	3
	Knowledge of law	2.35	1.66	1.7	3
UAP 2 Manager	Planning and organization of work	3.65	4.05	3.3	4
	Load management	3.55	4.0	3.1	4
	Self-sufficiency	3.5	4.15	3.5	3.5
UAP 4 Manager	Problem solving	3.35	4.3	3.7	3
	Performance	4.55	3.85	4.6	4.5
	Cooperation	3.55	4.4	4.1	3
PC&L Manager	Load management	3.65	3.75	3.3	4
	Flexibility	3.65	4.0	4.3	3
	Discovering and orientation in information	4.1	4.5	4.2	4

Source: authors

Most statistical methods assume a normal data distribution of the sample. However, if this assumption is not true, some methods cannot be used. Normality tests are used to determine whether the distribution can be considered normal (Walker, 2010). In the paper, Shapiro-Wilk Normality test was used (Spellman, 2014), carried out in R i386 3.2.3.programme. Both samples (actual levels and levels as seen by the employees) were tested. The results revealed that the first sample (actual levels) is normal; however, the second sample is not (levels as seen by the employees). Most often, Pearson's correlation coefficient (Devore, 2015) is used to measure dependence, but its condition is the normal distribution of the data, so it cannot be

used in this case. Therefore, Spearman's correlation, suitable if there is not the normal distribution, was used.

Hypotheses:

H_0 = An actual manager level and the level according to the employees´ rating do not depend on each other.

H_A = An actual manager level and the level according to the employees´ rating depend on each other.

The analysis of Statistica V12 revealed the values as seen in Table 2.

Table 2: Correlation Matrix - Actual level and level by employees

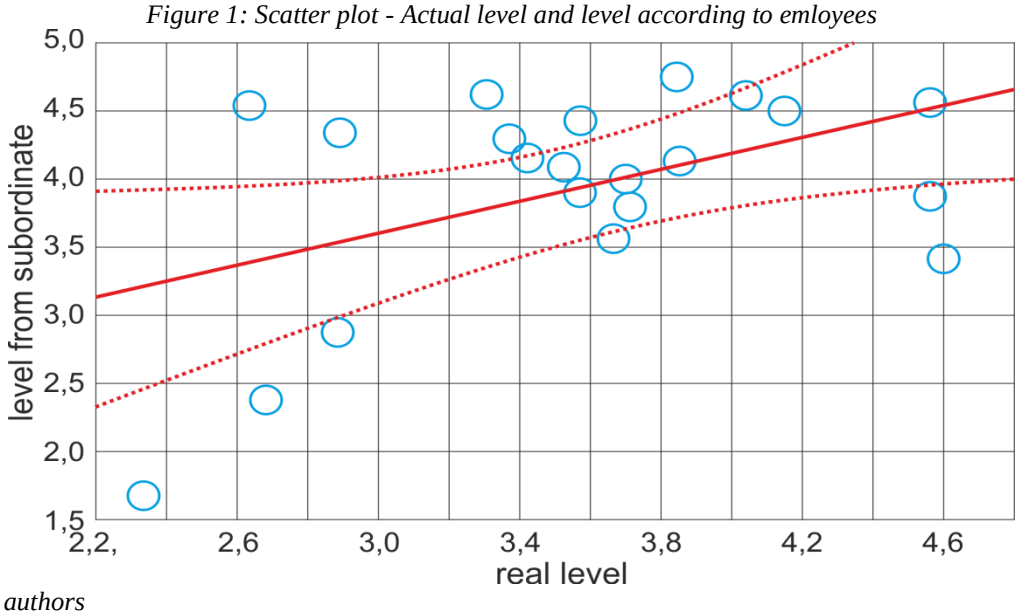
Spearman's correlation coefficient rSp	0.1805
Significance level α	0.05
Number of correlation pairs n	21
Critical value of Spearman's correlation coefficient rSp(0,05;21)	0.370
Test statistics	0.7999
P-value	0.4336

Source: authors

As Spearman's correlation coefficient r_{Sp} is less than the critical value r_{Sp} (0.05;21), it is not statistically significant at the level of α. This means that the correlation between the actual level of managers and the level of the subordinate assessment was not proved. This is also confirmed by a p-value that is greater than α significance level. It is not possible to reject H_0 hypothesis. It is supposed that the hypothesis is true. An actual manager level and the level according to the employees´ rating do not depend on each other.

A scatter plot displays the correlation. It is the easiest way to find out, if the variables are related. This gives us a basic idea of a common division of both variables. Each point in the correlation diagram corresponds to one pair of measurements, known as a correlation pair. As seen in the figure below, it is obvious that the points are distributed evenly over the whole area in the diagram, which is a proof that the dependence between the two variables monitored is very weak or does not exist at all. The variables do not correlate. This confirms the fact that H_0 cannot be rejected

Figure 1: Scatter plot - Actual level and level according to emloyees



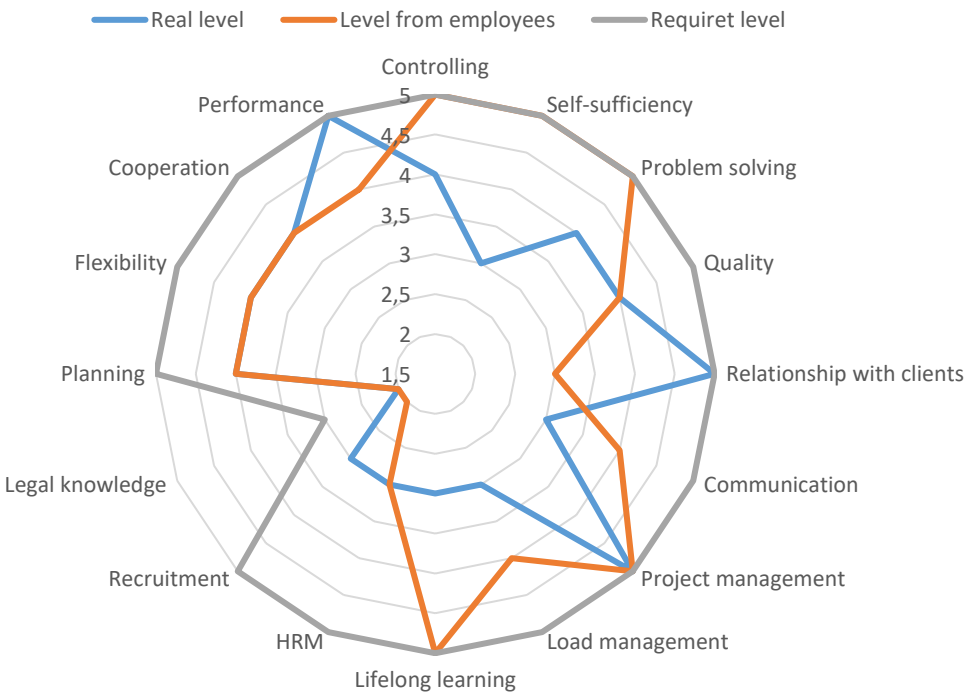
Source: authors

4. Conclusion

As seen in Figure 2, it is obvious, that the required competence (the best possible level) was reached in three competences only – Relations with clients tested for the quality manager, project management tested for the ME manager and performance tested for the UAP 4 manager. For the vast majority of the competences analyzed, the actual state was only one degree lower than required by the general manager, so it is acceptable. However, out of the 21 competences analyzed, there are seven of those in which the actual state differs from the required status by two or more degrees; this state of competence is not acceptable for the enterprise.

It is necessary to propose a possible development of the following competencies: self-sufficiency as tested for the controlling manager; effective communication and presentation tested for the quality manager; load management and long-life learning as tested for the ME manager; human resource management and recruitment tested for the HR manager; and problem solving tested for UAP4 manager.

.*Figure 2: Management competencies*



Source: authors

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THE IMPORTANCE OF SOCIAL MATURITY IN HEALTHCARE ORGANIZATIONS IN TODAY'S GLOBALIZED WORLD

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Abstract. Holistic management is becoming a more up-to-date management trend in a globalized world. We can even say that there has already been another school of management, which is still of increasing importance. The internal classification is divided into professional competence, practical skills and social maturity. Particularly in healthcare organizations, social maturity is still a more competitive advantage in today's globalized environment. The main aim of the paper is to present the classification of the social maturity pillar within the framework of holistic management and to emphasize the importance of social maturity in healthcare organizations. To do this, a survey was carried out by 176 healthcare professionals from various healthcare organizations. The results of the research will be divided according to the internal division, namely on character, will, cognitive and creative qualities, temperament, emotional, somatic-bodily and somatic-mental properties. These eight components of social maturity will be ranked according to importance. Research results indicate the main areas for further development of social maturity in health organizations. The author assumes the importance of the pillar as a key element of the competitiveness of healthcare organizations in a globalized world. It will be necessary to specify these identified areas for staffing of interpersonal, information, decision and administrative roles. The results of the research will be formulated in such a way as to respect the basic rules of management functions, namely efficiency, effectiveness, economy and equity.

Keywords: holistic management, social maturity, globalization, healthcare organizations

JEL Classification: M14, M20, M29

1. Introduction

"Man's maturity is shown, among other things, how she can handle her relationships."

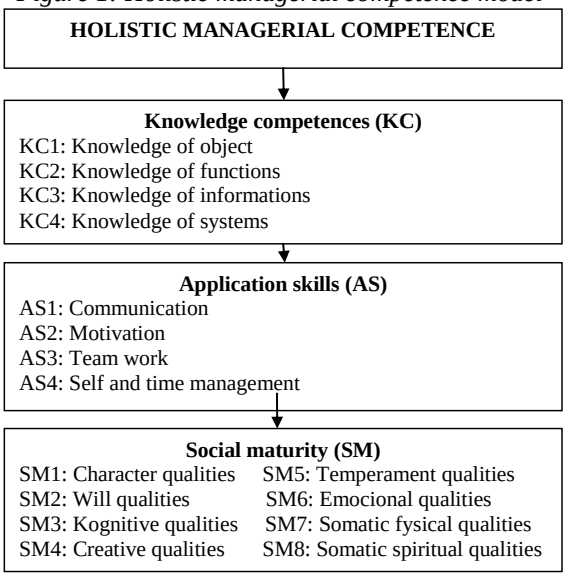
Anselm Grün

Social maturity, as a specific characteristic of human individuality, reflects the three basic areas of being - the ability to interact with others, to understand societies and people in it, to help people understand and take on their norms and rules of society. No man will be born with socially mature, in a socially mature person we develop gradually, as we harvest, educate, develop our skills and qualities. Another very important fact is that not all people are equally socially mature and not every person must necessarily achieve a degree in their development that we would call social maturity.

Healthcare organizations are facing ever greater challenges in the globalized world regarding internationalization, digitization and scientific and technological progress. It is here that there is room for a very important role of health workers, which is personal contact. This personal contact is then closely related to the concept of social maturity. This area is very specific from the point of view of the personality of the staff employed by healthcare organizations. It is always more demanding from the point of view of the professional - from the employer's point of view, which includes both professional knowledge and practical skills, as well as from an ethical and moral point of view - from the point of view of the clients and the lay-out.

Knowledge competence as the general and professional knowledge is the centre of the first pillar. This pillar is based on the adoption of relevant professional knowledge for the given working position, beginning from the studies at high schools and colleges, up to the concept of a lifelong education in individual companies. Professional competence predicates of whether the manager knows what has to be done. It is denoted as the functional competence as well. This pillar can be divided into four segments, whilst each segment comprises of five components. For instance, the segment knowledge about the subject of work comprises of five components: knowledge about the commitment of the subject, process of creating the products of work (technologies and technical standard), economic-financial aspects of creating the products, organization-juridical form of the subject and ownership relations and demand for competence with the working position.

Figure 1: Holistic managerial competence model



Source: Porvazník, Vydrová, Ljudvigová, 2017

The second pillar is the application skill, which indicates the standard of practical skills of managerial subjects, which means the ability to take the advantage of the acquired knowledge in everyday use. In this pillar we distinguish four segments, whilst each has five components. For instance, the segment communication skills is divided into the following five components: verbal and non-verbal communication skill, efficiency and reliability in communication, ability to use technical means in communication. In the third pillar of social maturity based on personal qualities of the employees and managers we distinguished eight components with five elements in each of them. For example, concerning the character qualities we discern five elements as follows: following of the organization-juridical

regulations and norms, ethical and moral behavior, emotionalism, communicational credibility towards other people, humanity and altruism. (Porvazník et al., 2017).

The internal division of the individual pillars of management is shown in Figure 1. The author will deal in detail with the pillar of social maturity and its individual components, which was also focused on research. The internal division of the pillar is thus divided into character, free, cognitive, creative, temperament, emotional, somatic-bodily and somatic-mental properties. This internal breakdown is the result of long-term collective research, including the author of the paper. Clonger, in his approach to studying temperament, adopts a generally shared view that temperament represents those personalities that are hereditary, emotional, developmentally stable, and unaffected by socio-cultural learning. Beyond the notion of temperament, which refers to the hereditary, developmentally stable and emotionally-based personality traits, it introduces the concept of a character that denotes a conscious self-reflection and self-judgments and associated intentional behaviour. (Preiss, 2000). In terms of temperament and character, the concept of emotional qualities of subjects of management is also closely related. Emotional intelligence can be defined as the ability to manage emotions and empathize with others. It can be divided into interpersonal and intrapersonal. Emmert (2003) and Paulínová (1993) characterize will features as properties of conditioned human will. They express a deliberate, purposeful effort to achieve a consciously defined goal that is only for man.

Free features are reflected, for example, in self-regulation of behavior and behavior. They apply both to the preparation of a certain activity, the decision-making process and the actual performance of the activity. They help overcome obstacles to achieving a goal. Will qualities are formed during life especially under the influence of education. Among the free features we include, for example, responsibility, endurance, conscientiousness, reliability, self-control, principle, conscientiousness, self-esteem, self-esteem, self-discipline, self-determination, self-determination, initiative. Each of these features also has its opposite.

The power of will helps to balance emotions and reason. Both the heart and the mind need to have a solid foundation "Me". Without the inner will and self-control, these two personalities would have a constant internal struggle. However, it is necessary to know that if trained will is the only strength of personality, then life is subordinated to external success. Such a will takes no regard for the mental needs of man and becomes a destructive force not only for his wearer.

Cognitive functions are one of the main areas of the human psyche; their centres are stored in different parts of the brain. Through cognitive functions, one perceives the world around, acts, responds, and manages different tasks. Thought processes give people the ability to learn, memorize, adapt to ever-changing environmental conditions. Cognitive functions also include, in addition to memory and concentration, attention, speech functions, thinking speed, understanding of information. Enabling functions include assessment and problem solving, planning, and organizing. (Medicalxpres, 2016)

Very close to cognition is creativity - from lat. creo = create. Creativity is a special set of abilities that allow for artistic, scientific or other creative activity. It is manifested as inventiveness, like the origin of a new, original work or thought, or, creative solution to problems. Petrova (1999) states that creativity is defined as "generating new, unusual but also acceptable, useful ideas, solutions." The creative process is then characterized by two basic elements, originality (originality) and usefulness, benefit). Psychosomatics as a concept originated in ancient Greek, from the two words "psychos" - the soul and "soma" - the body.

Therefore, the authors also divide the somatic features of physical and mental management entities. Psychological factors of somatic diseases were also investigated by psychosomatic medicine, which confirmed the relationship between the physical state and the psychic and emotional components. Later, the social component was added to this relationship. (Křivohlavý, 2001).

2. Research Methods

The main aim of the quantitative research was to discover respondents´ attitudes to set questions relating to holistic management, especially part of social maturity. The number of clear respondents was 176. The questionnaires were sent out by mail and e-mail. In the questionnaires, questions were asked with a predetermined range of possible responses and respondents could choose two type of questions – the first one was aimed at ranking the pillars of managerial competence, the second type of question was focused on a multiple answer, where the respondent could choose more options, a maximum of three.

Before the quantitative research was made, the three research questions were set, which are:

RQ1: More than 50% of respondents will prefer the social maturity pillar as a key factor in health care work.

RQ2: Respondents will most prefer the character and emotional qualities of the person.

RQ3: The least preferred component of social maturity will be the somatic-mental qualities and creative qualities of man.

All respondents were aware of the pillars of managerial competence, understood all the questions and concepts. In case the respondent did not understand some terms, they were briefly explained at the beginning. Respondents were notified in advance of the questionnaire. In total 247 questionnaires were sent, 183 questionnaires were returned and 176 questionnaires were evaluated after the selection of questionnaires which could not be used due to incorrect or incomplete filling. Returns were therefore 71%.

3. Research Results

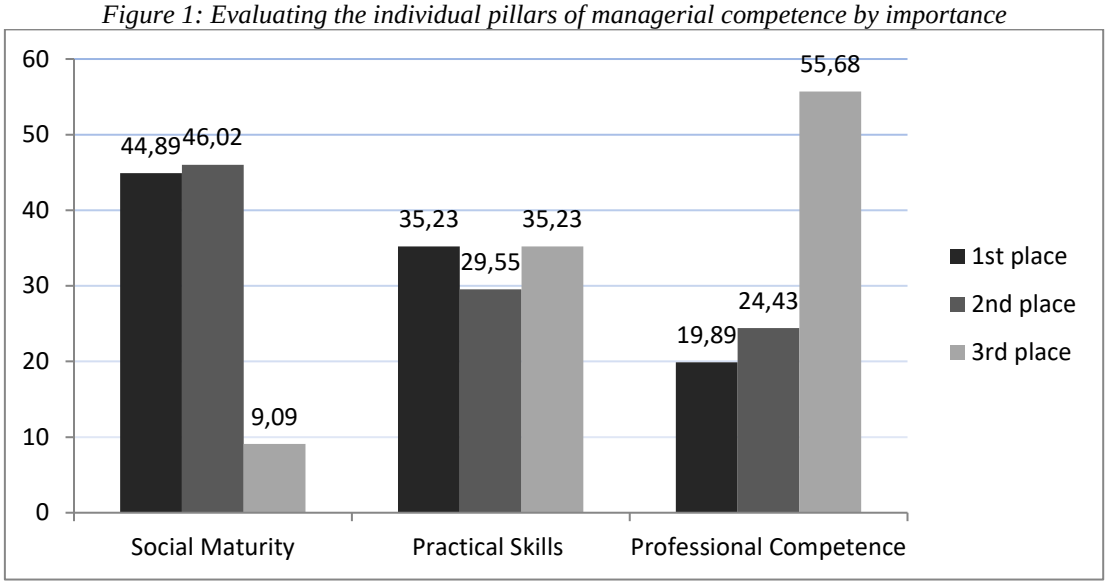
The main goal of the research carried out within the management of health organizations was to find out the importance of social maturity in the context of all three pillars of managerial competence. The research was carried out in the months of January - May 2017. Three research questions were identified for which the research was focused.

The first research question:

RQ1: More than 50% of respondents will prefer the social maturity pillar as a key factor in health care work.

The question was focused on the area related to the organization of pillars of managerial competence. The author expects a strong focus on the social maturity pillar as the most important factor for work in healthcare organizations.

Figure 1: Evaluating the individual pillars of managerial competence by importance



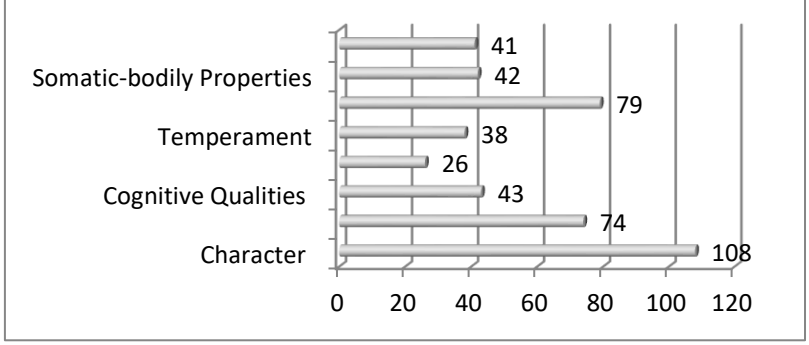
Source: own research

However, the research results do not confirm this thesis, or confirm it only partly. Only 45% of respondents report social maturity as the most important pillar of managers' competence. In the second place, the pillars of practical skills were placed, according to 35% of the respondents. Assuming the pillars of expertise is third. The results, therefore, point to the strong impact of social maturity in healthcare organizations. Another part of the research concerns individual components of social maturity. The aim of the research is to determine the preferences of the most important constituents of healthcare workers. Two research questions were also focused on this part of the research, which the author will try to confirm or refute. Second research question -

RQ2: Respondents will most prefer the character and emotional qualities of the person.

refers to the arrangement of individual factors, where respondents could choose up to three options. The author assumes, according to the research question, the preference of character and emotional characteristics. These characteristics are the most important part of the given profession from the theoretical and practical point of view. In view of the sensitive approach in healthcare organizations, these characteristics will be key to performing the profession beyond the scope of their duties in socially mature individuals.

Figure 1: Evaluation of the individual components of the social maturity pillar



Source: own research

The research results confirm this thesis. Respondents really mention the character and emotional characteristics as the most important features. The third place is the will, which is a

very important factor in terms of further education of employees. Self-education is one of the key areas of workers in healthcare organizations and self-training courses are not long held in the profession. Here the research slightly conflicts with the fact that the pillar of professional competence is the only place with a percentage of only 20%.

The third research question also deals with the division of the social maturity pillar, but from the other side - which of the pillars is considered the least important. They are supposed to be somatic-mental qualities and creative qualities of man. This assumption was only partially confirmed. Creative features have been identified by respondents as the least significant component of social maturity. We can include cognitive qualities, temperament, somatic-bodily properties and somatic-mental properties in the common group. Respondents have practically split the social maturity pillar into two groups, more important and less important from their point of view, which is very surprising for the author. Respondents mentioned the most important features for their work emotional qualities, will and character.

The research results therefore point to the importance of the pillar of social maturity as well as the pillar of professional skills. The results of research in health organizations point to the importance of character characteristics of employees, as acquired qualities that can be influenced by both self-sufficient and complex self-education.

4. Discussion

The current situation in healthcare management is very serious, both from the point of view of the qualification profile and from the perspective of adaptation to new technologies. At the moment it is possible that many tasks are already done using robotics, but the human approach is irreplaceable. Here is the great importance of the social maturity of individuals. Bejtkovsky (2017) speaks of the aging of the population in his publication, stating that ageing is one of global problems of the current world population. Populations of all countries are demographically ageing and birth rate is gradually decreasing. The development of science and technology allows companies to use modern technology. Their products become more competitive and these technologies allows at the same time to minimize costs. (Janoskova, 2016). And this is exactly the problem that the author points out and which is specific to healthcare organizations.

Managers perform three basic management tasks in health organizations, such as management of work and organization, using knowledge of a classical approach to management, management of staff using behavioral knowledge, and management of production and operation using the knowledge of managerial science. When performing management functions, the manager respects the requirements arising from so-called 4E analysis, which are effectiveness - doing the right things; efficiency - doing things in the right way; economy - doing things at minimal cost; equity- doing things fairly and by law.

A worker in healthcare facilities should therefore have certain characteristics that will be a good prerequisite for performing the job. Among the inherent qualities that help at work are qualities that touch upon human qualities such as social feeling, charisma, the need to drive, intelligence, executive orientation, extrovertness. Among the acquired characteristics that can be acquired through training and learning are mainly professional knowledge, practical and technical skills, good mental and physical fitness, socio-psychological knowledge. Good mental and physical fitness is very closely related to resisting various stressful situations, which are an essential part of the day-to-day work of medical staff. Therefore, it is also necessary for these workers to know the rules of mental hygiene, relaxation techniques both

long-term and short-term, or first aid relaxation techniques that act quickly but not long. Other features are also inevitable to constantly develop, deepen and improve, because the environment is very specific and demanding for both physical and mental fitness.

5. Conclusion

Healthcare management varies from professional management in other disciplines to service philosophy. Healthcare bears social responsibility for the health and illness of individuals, families and communities, and therefore a unique approach is needed.

Specific to healthcare management are two goals of quality service and quality staff. Modern management in healthcare therefore applies the knowledge of new sciences to the management process. These new knowledge are mainly informatics, statistical and operational analysis. Another specific feature is that it applies an interdisciplinary approach and forms new tendencies and ways to solve it.

The key role of modern management is, according to the World Health Organization (WHO), to provide new, better-quality health services through effective professional management.

The characteristics of the ideal person work in healthcare organization can be summarized in two basic categories, which are:

congenital properties: the need to drive - satisfaction from the management activity; the need for power - not only authority but also knowledge, experience and skills; empathy - feeling and understanding for co-workers; appropriate temperament - emotional and loose features of nature that determine man's behaviour and reaction to external stimuli; intelligence - ability to understand and separate thinking, and

characteristics gained: professional knowledge of the subject, economic knowledge, socio-psychological knowledge, knowledge of management methods and good physical and mental condition.

The research that the author deals with confirms these preconditions and raises the need for the acquired and inherent characteristics of people working in healthcare organizations. A key factor is continuing education in both personal and professional life. Without the constant inner need for self-education, no man, both in healthcare organizations and in classical management, will be able to pursue a very rapid pace of development not only of new technologies but also of ever-increasing competition from the point of view of employment.

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PROGRESS ON THE IMPLEMENTATION OF CLIMATE CHANGES AND ENERGY POLICY OF EUROPE 2020 STRATEGY IN EU COUNTRIES

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Abstract. EU countries are distinguished internationally for their high quality and standard of living resulting from high levels of economic development and extensive social systems. In particular, globalization and the increasing competitiveness of India's and China's rapidly growing industries, the IT revolution, the rise of the importance of knowledge and innovation, the aging of European societies, and the depletion of non-renewable natural resources are all on the list of challenges that Europe should face. In addition, the economic crisis of 2008-2009 contributed to the creation of the Europe 2020 Strategy. Europe 2020'' is a socio-economic programme of EU countries for 2010-2020. The strategy is to comply with long term challenges connected with globalization, ageing of population or the rising need of rational use of the resources. The present study is to examine the implementation of Europe 2020 Strategy environmental indicators in Poland and other EU countries as well as setting trends in this area and forecasting the period of realization of appointed objectives globally for EU and individually for Poland. The research period was 2010-2015 and the target values were determined for 2020.

Keywords: Europe 2020 Strategy, climate and energy indicators, forecasts

JEL Classification: C10, Q01, R11

1. Introduction

"Europe 2020– A strategy for smart, sustainable and inclusive growth" is a programme of socio-economic development of European Union (EU) countries for years 2010-2020 (European Commission, 2010). Europe 2020 is a strategy for smart growth, sustainable growth and inclusive growth (Balcerzak, 2015, A), (Balcerzyk, 2015, B). This is a social vision of social market economy for Europe of 21st century, the economy of high level of employment and the territorial cohesion (Greta et al., 2012). The strategy is to comply with long term challenges connected with globalization, ageing of population or the rising need of rational use of the resources (Terem et al. 2015; Kozlova, 2017; Paska & Surma, 2014). The main aim of Europe 2020 Strategy is the economic growth and balancing of this process (Eurostat; Klimko & Rievajova, 2015; Balcerzak & Pietrzak, 2016).

2. Objective, subject and research method

The present study is to examine the process of implementation of one of the headline areas adopted in Europe 2020 Strategy concerning the climate changes and energy (Table 1). The aims presented in Table 1 relate to sustainable development which is understood as supporting the economy which uses the resources more effectively, is more environment

friendly, thanks to low emission economy and which is more competitive. In this area framework there were 3 measurable environmental objectives which were specified as climate change and energy package. The purpose of present study is to set trends and estimates of indicators' accuracy in analyzed areas and to forecast the period of realization of appointed environmental objectives globally for EU and individually for Poland. It is advised to monitor the operations in this area because the positive changes are the exact reason for the increase of EU's energetic safety (the decrease of dependency between energy import and implementation of European Energy Union), as well as creating new workplaces, supporting ecological growth of economy and increasing Europe's competitiveness. If Europe succeeds to cover 20% of its demands for energy from renewable sources, there will be over 600 000 new workplaces in the EU. Additional 400 000 will create if Union realizes the objective concerning 20% of energy effectiveness. Obtaining the aims as regards energy would enable Europe to save EUR 60 billion on the import of petroleum and gas till 2020 which would have fundamental meaning from the point of view of energy safety, as well as the economic reasons (Komisja Europejska, Europa 2020; Liu et al. 2009).

Table 1:Objectives and headline indicators of Europe 2020 Strategy connected with climate change and energy

Environmental objectives of Strategy	Indicators	Global objective for EU	Individual objective for Poland
Reduction of greenhouse gas emissions (CO_2)	Greenhouse gas emissions (1990=100)	20%	14%
Increase of share of renewable energy in final energy consumption	Renewable energy in gross final energy consumption	20%	15.5%
Increase of energy productivity	Primary energy consumption	20%	14%

Source: Own study on the basis of (European Commission, 2010).

The target values of environmental aims in Europe 2020 Strategy have been estimated on global level which is for the whole European Union (as shown in Table 1), as well as on individual levels for particular EU countries which differ according to society and economy. To achieve Europe 2020 Strategy aims against climate change, it is necessary to reduce carbon dioxide (CO_2) emissions and to use new technologies (wind and solar energy, obtaining and absorbing of CO_2) to a greater extent. The target values of Europe 2020 Strategy concerning climate change and energy aims (Table 1) adequately for EU and Poland are presented as follows: EU assumed the greenhouse gas emission reduction for 20% or even for 30% in favorable conditions as regards the level from 1990. The assumed greenhouse gas emission reduction for Poland is 14%.

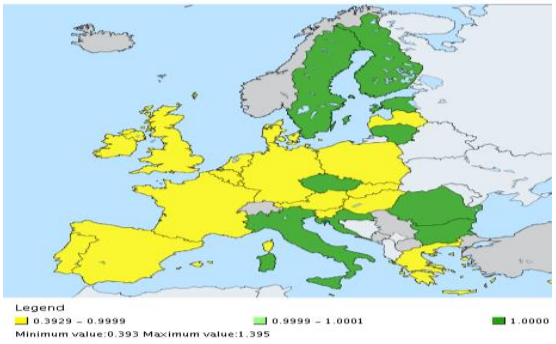
- increase up to 20% of renewable energy in gross final energy consumption. Increase up to 15.5% of renewable energy in gross final energy consumption in Poland.
- drive for the increase of energy efficiency by 20%, the assumption for EU is the reduction of primal energy use to the level of approximately 1483 Mtoe. For Poland it is approximately 96 Mtoe.

3. Implementation of Europe 2020 Strategy objectives in EU countries

Along with the social development there is an increasing need for energy with the simultaneous depletion of traditional sources- mainly fossil fuels (hard coal, petroleum and natural gas). The increase of natural environment pollution results in the increased interest in renewable energy use. One of the Europe 2020 Strategy aims concerning climate change and

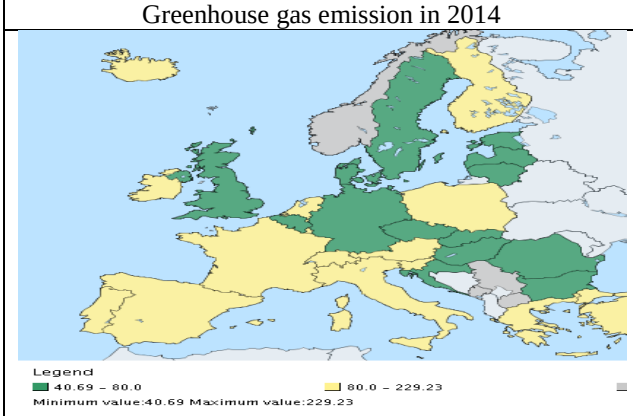
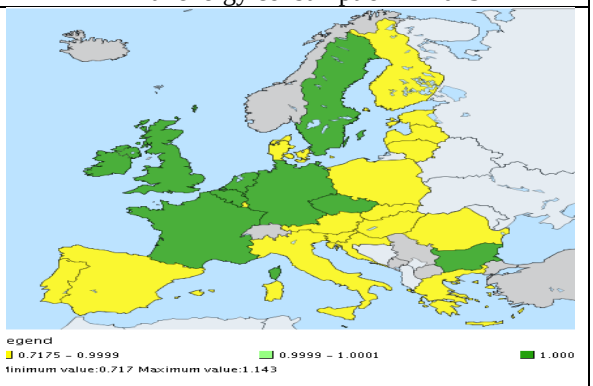
energy is the increase of renewable energy share in gross final energy consumption (Fig. 1.). The energy coming from renewable sources is the energy coming from natural, repeating processes, produced from non- fossil renewable sources, especially solar, wind, hydro, geothermal energy, biomass, biogas and bioliquids.

Figure 1: The share of renewable energy in gross final energy consumption in 2014*

	EU countries that fulfilled the aim* of Europe 2020 Strategy concerning the renewable energy share in gross final energy consumption. In 2010 (1 country): Croatia. In 2014 (9 countries): Finland, Sweden, Estonia, Lithuania, the Czech Republic, Romania, Bulgaria, Croatia, Italy.

** the countries marked with the dark color fulfilled the aims of Europe 2020 Strategy in particular year.*
Source: Own study on the basis of Eurostat.

Figure 2: Greenhouse gas emission (1990=100) and primal energy consumption**

Greenhouse gas emission in 2014	Primal energy consumption in 2015
	
EU countries that fulfilled the overall EU target of Europe 2020 Strategy* concerning the greenhouse gas emissions (1990=100)	EU countries that fulfilled the aim* of Europe 2020 Strategy concerning the primal energy consumption
In 2010 (10 countries): Bulgaria, Romania, Hungary, Slovakia, the Czech Republic, Germany, the United Kingdom, Lithuania, Latvia, Estonia. In 2014 (14 countries): Bulgaria, Romania, Hungary, Slovakia, the Czech Republic, Germany, the United Kingdom, Lithuania, Latvia, Estonia, Denmark, Croatia, Sweden, Belgium, additionally 3 countries fulfilled only the national target (Poland, Slovenia, Italy).	In 2010 (20 countries): Sweden, Belgium, the Czech Republic, Austria, Estonia, the United Kingdom, Germany, Italy, Greece, Spain, Portugal, Denmark, France, Slovakia, Bulgaria, the Netherlands, Ireland, Malta, Cyprus, Finland. In 2015 (11 countries): Sweden, Belgium, Bulgaria, Malta, the United Kingdom, Germany, France, the Czech Republic, Ireland, Cyprus, the Netherlands.

**the countries marked with the dark color fulfilled the aims of Europe 2020 Strategy in particular year.*
Source: Own study on the basis of Eurostat.

Between 2010 and 2014 positive changes were observed as regards the use of renewable energy in all member countries. The countries with the biggest share of renewables in gross final energy consumption in 2014 are as follows: Sweden (52.6%), Latvia (38.7%), Finland (38.7%), Austria (33.1%). The lowest results were obtained by such countries as: Malta (4.7%), Luxembourg (4.5%), the Netherlands (5.5%), the United Kingdom (7%). As it is shown in Fig.2. the aim of Europe 2020 Strategy concerning the increase of renewables share in gross final energy consumption was fulfilled in 2014 by 9 EU countries. For comparison, in

2010 there was only 1 country which fulfilled the aim – Croatia, whereas other countries such as: Ireland (in 2014 the renewables share in gross final energy consumption was 13,8% - the aim for 2020 equals to 18%), the Netherlands (in 2014 the renewables share in gross final energy consumption was 5.5% - the aim for 2020 equals to 14%), Luxembourg (in 2014 the renewables share in gross final energy consumption was 4.5% - the aim for 2020 equals to 11%) or Malta (in 2014 the renewables share in gross final energy consumption was 4.7% - the aim for 2020 equals to 10%) may have problems with required aims fulfillment because the proportion of renewables share in gross final energy consumption in relation to required aims for 2020 is really small. In Poland, in 2014 the renewables share in gross final energy consumption was 11.45% and it increased by 4.55 percentage points in comparison with 2005, thus there are 3,55 percentage points missing to achieve required aim. In Denmark, there are missing as well about 3% to fulfill European Parliament's aim concerning renewables share in gross final energy consumption in 2020. The structure of energy production from renewable sources in researched countries is diverse which results first and foremost from geographical and climate conditions and the ability of a particular country to use its resources efficiently. The similarities and differences between the EU countries and region by the structure of generation of energy from renewable sources are shown in the study (Warzecha, 2016; Sen & Ganguly, 2017; González & Lacal-Arántegui, 2016).

Table 2: Implementation of national target levels of climate change and energy indicators appointed for 2020 (the 2014 and 2015 status).

No.	Country	A	B	C	Amount of fulfilled Strategy objectives	Country	A	B	C	Amount of fulfilled Strategy objectives
1	Austria				0	Lithuania	x	x		1
2	Belgium		x	x	2	Luxembourg				0
3	Bulgaria	x	x	x	3	Latvia		**x**		1
4	Croatia	x	x		2	Malta			x	1
5	Cyprus			x	1	Germany		x	x	2
6	The Czech Republic	x	x		2	**P o l a n d**		**x**		**1**
7	Denmark		x		1	Portugal				0
8	Estonia	x	x		2	Romania	x	x		2
9	Finland	x			1	Slovakia		x	x	2
10	France			x	1	Slovenia		x		1
11	Greece				0	Sweden	x	x	x	3
12	Spain				0	Hungary		x		1
13	The Netherlands			x	1	The United Kingdom		x	x	2
14	Ireland			x	1	Italy	x	x		2

A: Gas emission 2014; B: Renewables share 2014; C: Primary energy consumption 2015
Source: Own study on the basis of Eurostat.

In order to improve the quality of natural environment the reduction of greenhouse gas emissions was anticipated in Europe 2020 Strategy, whereas the aims differ as regards the wealth of particular countries- from the reduction by 20% for the wealthy economies to the increase by 20% for less wealthy countries (but they are still obliged to put the effort in reducing the emissions) [11]. As it is shown in Fig.2. the Europe 2020 Strategy aim concerning the greenhouse gas emission (1990=100) was fulfilled in 2014 by 17 EU countries and in 2010 by 10 countries. Therefore, in majority of the EU countries the reduction of greenhouse gas emission was noticed. The most significant reduction of emission in 2014 in comparison to 1990 was in following countries: Lithuania (by about 60%), Latvia (by about 56%) and Romania (by about 57%). The downward trend of greenhouse gas emission results first and foremost from the introduction of restrictive environmental policy, especially in energy sector. The alarming phenomenon is the increase of greenhouse gas emission in five

member countries: Malta (by 50.88%), Cyprus (by 43.11%), Spain (by 17.54%), Ireland (by 5.69%), Portugal (by 8.82%). One of the manifestations of conducting economy effectively using the resources is the increase of energy consumption effectiveness. In 2015, the overall energy consumption in EU (expressed in tonnes of oil equivalent – TOE) equaled to 1529.6 million TOE (127.1 million TOE less than in 2010). In Poland it equaled to 90 million TOE (5,7 million TOE less than in 2010). As it shown in Fig.2. the Europe 2020 Strategy aim concerning the increase of energy efficiency (i.e.: the reduction of primary energy consumption) was fulfilled in 2014 by 11 EU countries and in 2010 by 20 countries.

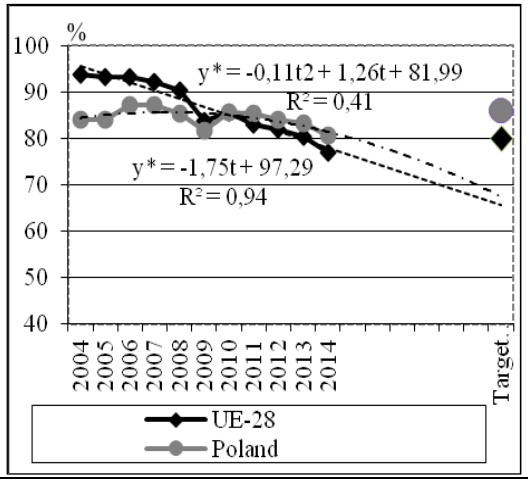
From the data included in Table 2 it results that the level of Europe 2020 Strategy environmental aims implementation is diverse. Only two countries fulfilled all three climate change and energy aims and they are Bulgaria and Sweden, 10 countries fulfilled 2 out of 3 aims (Lithuania, Estonia, Italy, Romania, the Czech Republic, Belgium, Croatia, Germany, Slovakia, the United Kingdom); 11 EU countries fulfilled one aim (Latvia, Denmark, Cyprus, the Netherlands, Hungary, Slovenia, Finland, Poland, France, Ireland, Malta) and 5 countries did not fulfill any of the required aims (Austria, Greece, Spain, Portugal, Luxembourg).

4. Indicators of Europe 2020 Strategy in EU-28 and in Poland between 2004 and 2015 and forecasts of aim implementation for 2020

As it is shown in Fig.3. the overall greenhouse gas emission in EU and Poland was decreasing systematically between 2004 and 2014 (which was the Europe 2020 Strategy objective). The greenhouse gas emission in 2014 was reduced by about 23% in the EU in comparison to 1990 and in Poland it was reduced by slightly over 19%.

Figure 3: Overall emission of greenhouse gas in EU-28 and in Poland between 2004 and 2014 and the evaluation of forecasts admissibility for 2015-2020.

Overall emission of greenhouse gas between 2004 and 2014 and the aim for 2020



Evaluation of forecasts admissibility of greenhouse gas emissions for 2015-2020 in EU-28 and in Poland

Year	Forecast EU-28	Ex ante error	Mean relative error of forecast in %
2015	76.24	1.86	2.44
2016	74.48	1.94	2.60
2017	72.73	2.02	2.78
2018	70.97	2.11	2.97
2019	69.22	2.21	3.19
2020	67.47	2.31	3.42
Year	Poland		
2015	80.12	2.38	2.97
2016	78.43	2.92	3.72
2017	76.51	3.61	4.72
2018	74.35	4.45	5.99
2019	71.95	5.42	7.53
2020	6932	6.52	9.41

Source: Own study on the basis of Eurostat.

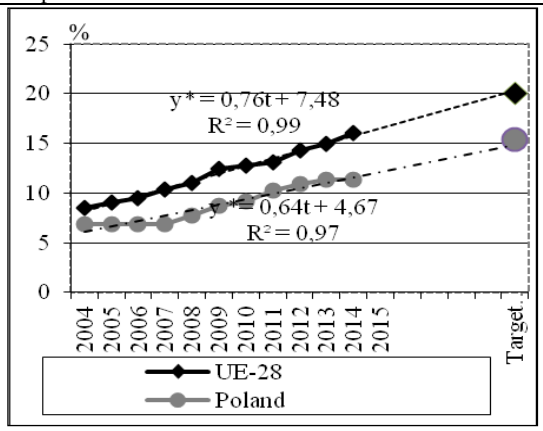
According to the data included in Fig.3. and the forecasted Strategy aims- the reduction of greenhouse gas emissions by 20% for EU and by 14% for Poland in comparison to 1990 has been already achieved and in the following years until 2020 the further reductions of greenhouse gas emissions will take place.

The estimated trend models are suitable for the data (there are high coefficients of determination). The greenhouse gas emission forecasts in comparison to 1990 were calculated

(GRETL programme was used to made all calculations, to choose appropriate trend model, to calculate forecasts and prediction errors) for 2015-2020 and they are presented in Fig.4. along with the forecasts errors. According to the assumption of the prediction theory, the forecasts that have the mean prediction error lower than 10% are admissible (Biolik, 2013; Zeliaś, 1997). Thus, the forecasts for the UE and for Poland for 2015-2020 may be treated as admissible.

Figure 4. Overall share of renewables in gross final energy consumption in EU-28 and in Poland between 2004 and 2014 and the evaluation of forecasts admissibility for 2015-2020.

Share of renewables in overall gross final energy consumption between 2004 and 2014 and the aim for 2020



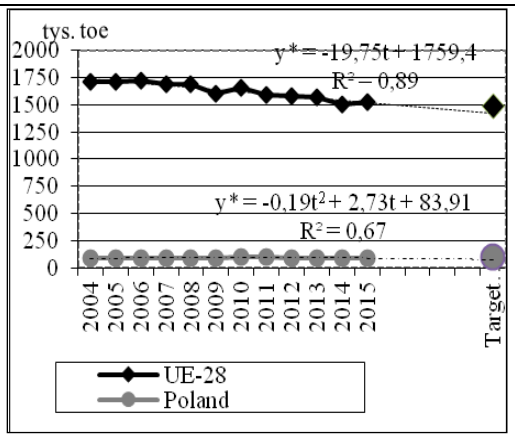
Evaluation of forecasts admissibility of renewable energy sources for 2015-2020 in EU-28 and in Poland

Year	Forecast EU-28	Ex ante error	Mean relative error of forecast in %
2015	16.53	0.30	1.81
2016	17.29	0.32	1.85
2017	18.04	0.33	1.83
2018	18.80	0.34	1.81
2019	19.55	0.36	1.84
2020	20.31	0.38	1.87
Year	Poland		
2015	12.20	0.32	2.62
2016	12.95	0.36	2.78
2017	13.63	0.36	2.64
2018	14.29	0.36	2.52
2019	14.94	0.36	2.41
2020	15.59	0.36	2.31

Source: Own study on the basis of Eurostat.

Figure 5. Overall primary energy consumption in EU-28 and in Poland between 2004 and 2015 and evaluation of admissibility of forecasts for 2016-2020.

Overall primary energy consumption between 2004 and 2015 and the aim for 2020



Evaluation of admissibility of primary energy consumption forecasts in EU-28 and in Poland for 2016-2020

Year	Forecast EU-28	Ex ante error	Mean relative error of forecast in %
2016	1502.60	31.39	2.09
2017	1482.85	32.49	2.19
2018	1463.10	33.70	2.30
2019	1443.35	35.01	2.43
2020	1423.60	36.41	2.56
Year	Poland		
2016	87.42	2.59	2.96
2017	85.03	3.09	3.63
2018	82.27	3.74	4.55
2019	79.13	4.53	5.72
2020	75.62	5.44	7.19

Source: Own study on the basis of Eurostat.

As the data in Fig.4. shows, the renewables share in overall gross final energy consumption in EU and in Poland was increasing systematically between 2004 and 2014 (on average by 0.76% for EU and by 0.64% for Poland). The renewable energy share in 2014 equaled to 16% for EU and to 11.4% for Poland.

According to the data presented in Fig.4. and calculated forecasts, the Strategy aim-increase by 20% of overall renewables share in gross final energy consumption for EU and the increase by 15.5% of overall renewables share in gross final energy consumption for Poland is possible to achieve in 2020. The calculated forecasts for EU as a whole and for

Poland for years 2015-2020 may be treated as admissible (all of the forecast errors are lower than 10%). The data in Fig.5. shows the overall primary energy consumption in EU and in Poland, it was systematically decreasing between 2004 and 2105. According to the data presented in Fig.5. and calculated forecasts, the Strategy aim- the decrease of primal energy consumption for EU to 1483 Mtoe will be achieved in 2017, and for Poland the decrease to 96 Mtoe has been already reached and in the following years there will be further decrease of primary energy consumption. The calculated forecasts for EU as a whole and for Poland for 2016-2020 may be treated as admissible (all of the forecast errors are lower than 10%).

5. Conclusion

In Europe 2020 Strategy there were determined three headline objectives for EU as a whole and national targets for particular member countries as regards the climate change and energy policy. The level of researched environmental aims implementation in Europe 2020 Strategy is diverse in EU countries. Only two countries fulfilled all three climate change and energy objectives and they are Bulgaria and Sweden, 10 countries fulfilled 2 out of 3 objectives (Lithuania, Estonia, Italy, Romania, the Czech Republic, Belgium, Croatia, Germany, Slovakia, the United Kingdom); 11 EU countries fulfilled one objective (Latvia, Denmark, Cyprus, the Netherlands, Hungary, Slovenia, Finland, Poland, France, Ireland, Malta) and 5 countries did not fulfill any of the required objectives (Austria, Greece, Spain, Portugal, Luxembourg). The conducted analyses show the positive influence of Europe 2020 Strategy as regards the climate and energy changes. In the EU countries, there was an improvement of the indicator concerning the greenhouse gas emissions. Moreover, in all of the countries there was an increase of renewables share in gross final energy consumption. According to the calculated forecasts the assumed Europe 2020 Strategy objectives will soon be achieved, for EU-28 and for Poland they have already been achieved in 2016 (as it is in case of the greenhouse gas emissions). According to European Commission further structural reforms on energy markets are necessary to create resistant Energy Union with prospective politics as regards the climate changes, Europe 2020 Strategy objectives and the climate change and energy policy till 2030. The improvement of energy deliveries safety and finishing the internal energy market are necessary as well. It requires modernization and development of energy infrastructure and integration of renewable energy sources in one system. The EU structural funds will ensure the financial coverage, while the EU countries should introduce innovative financial mechanisms to stimulate the increase of investments in energy infrastructure and they should encourage private households to invest in energy efficiency.

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THE DETERMINANTS OF HIGH-TECH SECTORS DISPARITIES IN THE EU-28 IN CONDITIONS OF GLOBALIZATION

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Abstract. The main objective of the paper is to investigate the determinants of high-tech sectors disparities among the twenty-eight European Union countries in conditions of globalization process. The empirical and theoretical surveys on the current state of the high-tech sectors of modern economies and their development perspectives will be a continuum of interests of researchers not only in economic sciences. High technology sectors development, as both determinant and result of globalization, are one of the most important strategic target of the European Union's economic policy. Creating and commercialising new high technologies is essential in the conditions of globalization, mainly for competitiveness. Innovations and high technologies are a motor for economic progress. It is therefore a key element of Europe 2020 Strategy. There is a need to measure progress and achievements in relation to the goals redefined in the Europe 2020 Strategy. To achieve the objective of the paper there will be compared a number of diagnostic variables describing the high-tech sector in the EU member states, along with the attempt to explain the determinants of their position in particular groups.

Keywords: high-tech sectors, globalization process, competitiveness, determinants of high-tech disparities

JEL Classification: C38, F60, O14, O31, O33

1. Introduction

On the one hand, technological progress as one of the drivers for the development of high-tech sectors, is the driving force for globalisation process. On the other hand, globalisation process that is also fuelled by other forces (e.g. through liberalisation of the flow of capital, goods, services and labour resources, increase in competition in transnational dimension and dynamics of demand growth), affects the dynamics of development of high-tech sector. Taking into consideration the diversity of economic potential, and thus capability of economies to absorb and apply high technologies, these mechanisms contribute to emergence of disparities between individual European Union member states. Globalisation is a phenomenon influencing various economy sectors in a different way. Considering diametrical character of its effects, as a result, both underdeveloped and dynamically developing areas occur in economic space. Because of heterogenous nature of high-tech sectors in contemporary economy, the article adopts their comprehensive definition, i.e. the one

referring both to high-tech industries as well as knowledge-intensive services (KIS). The objective of the paper is to explain diversification of high-tech sectors in European Union member states against the background of selected variables describing these sectors in conditions of influence of globalisation forces. The time range of the analysis primarily includes the years between 2004 and 2015. In the case of lack of continuity of data, data in subperiods are used.

2. Globalisation and development of high technologies

Globalisation is a complex multidimensional process of growing dynamics. As stated before, there is a whole range of correlations of cause and effect character between globalisation and high-tech development. Thanks to development of the Internet, mobile telephony, air transport network (also including the cost decrease in these sectors) and migrations, there occurs intensification of the flow of concepts, inventions, knowledge diffusion and growth in people-to-people contacts. They determine the process of internationalisation of enterprises and expansion of transnational corporations (Skórska, 2015; Capello & Perucca, 2015; Marginean 2015; Lawal et al., 2017; Labonté et al., 2015; Linina et al., 2016; Bajzik, 2016). Important stimulants of globalisation process include, among others, technological progress and related economies of scale achieved in production, logistics, research and development works, transformation of distribution channels as a result of the use of the Internet capabilities, broader and broader application of tele-information technologies in the process of production of goods and services, expansion of markets, as well as outsourcing and offshoring.

Consequences of globalisation process in economic and social sphere are assessed in a diversified way (Berggren & Nilsson, 2015). In the case of high-tech sectors, globalisation is of the key significance for their development. The essence and importance of globalisation and global markets for economic development was diagnosed and assessed in several economic works (Capello & Perucca, 2015; Baesu et al., 2015; Marginean, 2015; Welander et al., 2105; Linina et al., 2016). They emphasised mainly positive impact of globalisation on economic growth, development of democracy, development of high-tech sectors and other spheres of social and economic life. According to selected results of cited works, it is probable that economic and trade-related liberalisation is conducive to GDP growth (Skórska, 2015; Capello & Perucca, 2015; Marginean 2015). In one of the works it is stated that if European integration had not occurred, GDP per capita in the EU would have been lower by around 20% between 1950 and 2000 (Badinger, 2005). Econometric research conducted on a group of European Union member states between 1994 and 2011 particularly show that the size of employment in high-tech industries had statistically significant, positive impact on the number of patent applications (Baesu et al., 2015). The same research shows that expenditures on R&D per capita are negatively correlated with the number of patents registered in EPO (European Patent Office). Other determinants comprised in the model specification, such as expenditures on education, government spending on R&D, the level of economic development of a specific country, the size of employment in the sector of science and technology, and the size of export, do not have a significant impact on innovative activity in high-tech industries (Baesu et al., 2015). The phenomenon of globalisation and development of high-tech sectors as economic categories between which there is a network of interactions, expose the importance of knowledge in the processes of manufacturing of goods and services. Contemporary pace of globalisation intensifies the applicational character of knowledge as one of the key production factors.

3. High-tech as an ambiguous economic category

There are many definitions of high-tech sectors, activities as well as services occurring in the literature (Skórska et al., 2016; Steenhuis & De Bruijn, 2006; Skórska, 2015; Hertog, 2001). The subject matter of these definitions is of the key importance from the point of view of selection of statistical variables that determine differences in development of high-tech sectors in individual countries. Major criteria allowing for being classified within high-tech sector most often include intensity of research and development work that is primarily measured with the size of expenditures on R&D activity towards added value or the value of production and sale (Baesu et al., 2015; Skórska, 2015), share of innovative goods in total sale, and the share of technological staff in total employment (Wąsowicz, 2016). Application of classification of technologically advanced products raises problems of heterogeneity and incomparability of data within selected group of states.

The measure that allows for monitoring the dynamics of High Growth Innovative Enterprises (HGIE) is one of relatively new indicators of progress in implementation of Europe 2020 Strategy (in the sphere of formation of innovation union, increase in expenditures on R&D to 3% throughout the EU, etc. among others). Indicator of Innovation Output, according to which HGIE group comprises enterprises that employ at least 10 workers, and the dynamics of employment growth on the level of over 10% per annum over the period of three years is one of the measurement forms (Kolar, 2014). In EU statistical system, sector-specific innovation coefficients that reflect the level of innovativeness of specific economy sectors are also applied. These coefficients are weighted with sector shares of employment in rapidly developing enterprises.

Table 1: Product/process complexity level

Criterion		Product complexity	
		Low	High
Process complexity	Low	Low-tech product Low-tech production (furniture)	High-tech product Low-tech production (aircraft)
	High	Low-tech product High-tech production (soap)	High-tech product High-tech production (bio-molecular device)

Source: Steenhuis & De Bruijn, 2006

One of research works presents the concept of a new approach to defining high technologies. It is based on dichotomic division of qualitative criteria that refer to product and technology used for its manufacturing (Steenhuis & De Bruijn, 2006; Baesu et al., 2015). Product and/or production process perceived as a statistical parameter describing high technologies is one of the variables. It is presented in tab. 1. The second variable has a dynamic nature and refers to the notion of innovation. The notion of innovation is related to the concept of product life cycle. The speed of product development, especially the pace of its ageing, is one of major criteria determining whether a product is included in the group of high technologies (Malecki, 1985; Pustovrh et al., 2017). The authors of the cited work state that classifying specific products within high technology group may occur as a result of assessment of three basic parameters, i.e. product complexity, complexity of production process and the length of product life cycle, performed on a two-degree scale (low, high). According to another concept, high-tech sectors can be divided into two separate groups. The first group includes the so-called output based sectors in which accent falls on the technical sophistication of the final product. The second group comprises the so-called input based

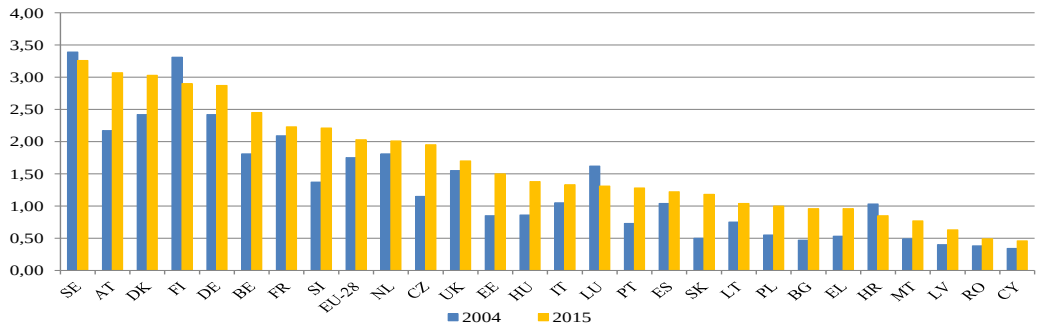
sectors relying on a determination of the level of research and development associated with specific industries (Bartos, 2007; Steenhuis & De Bruijn, 2006). Regardless of adopted definition, high level of labour and capital productivity is the feature connecting both groups of high-tech sectors (Wąsowicz, 2016; Baesu et al., 2015).

4. High-tech sectors in the EU states – comparative analysis

The analysis comprises several features describing high-tech sectors in the European Union member states. The basic criterion for selection of these variables is their coherence with definitions of high technologies as well as representation of individual partial phenomena (Wąsowicz, 2016). Because of the lack of complete data concerning expenditures on R&D, the analysis applies GERD indicators (Government Expenditure on Research and Development) [7]. Dynamics of growth of total GERD (as a percentage of GDP) between 2004 and 2015 in the EU was at the level of 16%. As a result, mean annual rate of their growth was 1.35%. In 2015 in the whole EU-28, these expenditures reached 2.03% of GDP (Eurostat, 2017). At the same time, statistical data show that there are significant differences between the EU member states with respect to expenditure on R&D. Only three states contributed at least 3% of GDP to R&D in 2015 (Sweden, Austria and Denmark). Slightly below 3% of GDP was provided to R&D by two states, i.e. Finland (2.9%) and Germany (2.87%), but in Finland, these expenditures are decreasing in a long term (in 2015 they fell below 3% of GDP for the first time in 12 years). In total, 4 out of the aforementioned EU-28 member states constitute a relatively homogenous group in the case of which implementation of the specific goal, i.e. 3% of GDP on R&D expenditures until 2020 does not seem to be under threat. If Finland maintains a decreasing rate of expenditures, implementation of the goal until 2020 will not succeed.

In the whole period included in the analysis (2004-2015) in two of the EU-28 states (except for Finland) the dynamics of changes in expenditures on research and development was negative (Luxembourg – decline by around 20% and Croatia – decline by around 17.5%). In seventeen member states, the share of expenditures on R&D in GDP is not satisfactory, i.e. it reaches a maximum of 1.5%, and in the case of majority of CEE states (Central-Eastern Europe) it is on the level of 1% or significantly below 1%. In the group of CEE states, the Czech Republic is an exception with respect to this, as they contribute almost 2% of GDP to R&D. It is shown in fig. 1.

Figure 1: Total government expenditure on R&D (excluding Ireland due to lack of data)



Source: Eurostat, 2017

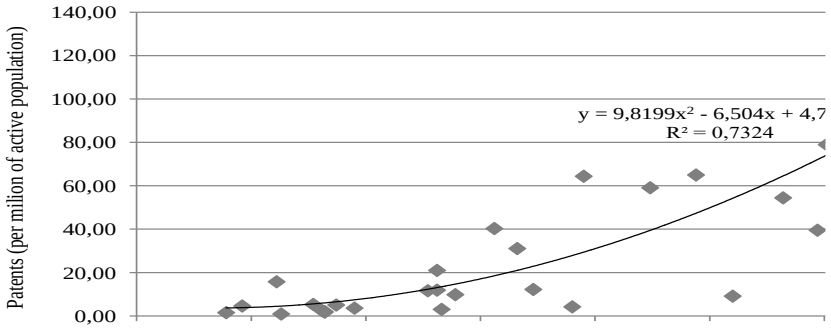
[7] Data concerning Ireland is available only to 2014.

Reference level of expenditure on R&D, determined in Europe 2020 Strategy, as well as indicators of the expenditure of individual EU member states are a potential stimulant of results achieved in high-tech sector. Patents in the sphere of high-tech are one of the indicators of the capability of a specific state to apply knowledge, and to transform it into potential economic benefits. Patents reflect innovative activity of the state. In this context indicators based on patent statistics are applied for the assessment of achievements of the states with respect to inventions. Considering the number of patent applications in the sector of high-tech, Finland, Sweden and Denmark are the leaders in the EU. It should be stated that these states provide expenditures on R&D on the level of 3% of GDP. Data by Eurostat show that the largest dynamics of growth in the number of patent applications in high-tech sector between 2004 and 2013 was reached by CEE states, particularly Latvia (750%), Romania (413%), Poland (313%) and Lithuania (274%). Relatively high increase in the number of patent applications in high-tech sector is firstly the expression of progress in catching up with economically developed countries, and secondly it is the base effect, i.e. a very small number of patents in the period adopted as the basis for dynamics indicators. In almost all the states that joined the EU in 2004 and later (except for Latvia and Estonia), the aforementioned indicator of patent applications was not higher than 10.0. The same situation is observed in Greece and Portugal. In comparison with the mean number of patent applications in the EU-28 (33 applications in 2013), the situation in the states indicated before is far from satisfactory. This conclusion is specifically important since the size of expenditure on R&D is one of determinants of the number of patents – see fig. 2.

Compared series of statistical data concerning R&D expenditures to GDP ratio and the number of patent applications per one million occupationally active people, confirm positive correlation between these variables. Determined regression function in the form of polynomial of the second degree is characterised by satisfactory level of adaptation to empirical data (coefficient of convergence R^2 was 0.732) -see fig. 2. In another work, the author applied Hellwig's synthetic measure of development and on its basis, he created a ranking of EU states that included 7 variables describing high-tech sectors. The research showed a positive correlation between developed ranking of the states, and the level of expenditures on R&D (Wąsowicz, 2016).

Between 2004 and 2015, on average, in the EU-28 there occurred an increase in the share of people employed full time in R&D sector and researchers in human resources in general. In this period, employment decline was observed only in three states, i.e. in Finland (by around 15%), in Croatia by 10.7%, and in Luxembourg by 6.4%. Decrease in employment in Finland and Luxembourg is not alarming because in 2004 both states had the largest shares of employment in R&D (2.26 and 2.16 respectively), both in comparison with the mean rate in the EU-28 (0.94) and with other states. Relatively significant increase in the number of people employed full time in R&D was reported in CEE states (Eurostat, 2017), which, similarly to the dynamics of patent applications and expenditures on R&D, proves the progress in eliminating development gaps differing the states from other EU countries. The assessed regression function in the form of polynomial of the second degree that illustrates the relationship between employment in R&D and the number of patent applications, provided only moderate match with the distribution of empirical data (R^2 was 0.6). As a result, correlation of these two variables should be assessed with caution.

Figure 2: Regression function: high-tech patent applications and total government expenditure on R&D in the year 2013 (excluding Ireland due to lack of data)



Source: own calculation based on (Eurostat, 2017)

One of the indicators of modern economy in which information technologies are reasonably applied, and thus all contacts between the society, companies and public administration are facilitated, is the degree of development, and application of the Internet for this purpose (e-government). Statistical data show that in 2016 in the EU, 48% of natural people used the Internet to contact public administration. Since 2008, on average, in the EU-28, the rate grew by 37% (Eurostat, 2017). The sphere of e-government services has been developing in all member states because of two major reasons. Firstly, the expenditure on development of tele-information infrastructure is increasing, and secondly, the willingness of natural people and enterprises to use the Internet for the purpose of contact and to deal with all possible matters in public administration offices is growing. In some of the EU-28 member states, the development of e-government services allows to obtain remarkable budget savings (*vide* example of Greek economy). Furthermore, relatively high dynamics of growth in these services is observed in new member states, i.e. those that joined the EU in 2004 and later. The rate of people making use of the Internet to contact public administration among the people using the Internet is even larger than in the case of total population (on average 58% in the whole EU-28 in 2016).

5. Conclusion

Within adopted criteria of development of high-tech sectors, significant differences in the situation in this regard is functioning across the European Union. In the whole period included in the analysis, the process of catching-up with the countries that were EU member states before 2004, by the states that joined the EU in 2004 or later is observed. As a result, we face a slow process of real convergence in the sphere of development, and practical application of innovative technologies primarily in CEE states. The variables adopted for description of high-tech sector (expenditure on R&D, patent application, the employment rate of researchers and specialists in R&D and e-government) actually show that in the countries belonging to CEE group, the dynamics of growth in their value is observed, and in a long term (but going beyond the time scope of Europa 2020 Strategy) it will allow for the states to reduce the distance differing them from other member states. It also results from regression analysis that there is a positive correlation between expenditure on R&D and the number of patent applications. If increase in the number of patent applications in the sphere of high-tech grows together with the growth in expenditures in CEE states, the states can also achieve a higher level of productivity of the capital and labour involved in high-tech sectors. The process can also contribute to improvement in technological competitiveness of CEE states on EU markets and outside the EU. The analysis of data shows that the states that are leaders in

EU-28 with respect to the number of patent applications in the sphere of high-tech (Finland, Sweden and Denmark) also belong to the group of leading states with respect to expenditures on R&D (i.e. around 3% of GDP).

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GERMAN LABOUR MARKET IN TIMES OF GLOBALIZATION AND THE FUTURE OF THE WELFARE STATE

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Abstract. Globalization has brought benefits to the economy in many areas and has led to a clear economic recovery in some countries. However, the changed situation of the global economy has also brought many new questions for economy and politics. This scientific paper deals with the question of how the economic wonderland of the European economy and export world champion Germany has embraced the new challenges. In particular, it presents the developments and changes on the labor market and the consequences for the German social system, the welfare state. The article examines the possible reasons for the low unemployment rate. While it is standard for people in Eastern European countries to adopt a normal, that is, full-time employment contract, the situation is somewhat different in Germany. This article shows on the basis of labor market statistics that there is a high proportion of part-time work in Germany, as well as new forms of employment contracts, bogus self-employment, midi- and mini jobs with reduced contributions to social insurance and often interrupted by periods of unemployment. However, lower social security payments also lead to reduced social expenditures and burden the budget necessary for a sufficient pension insurance. Although the extension of the working time to 67 years will solve parts of the problem, it also means an intensification of the generation conflict concerning the unemployment of the young. This paper shows that global structural changes represent a challenge for economy and politics if the welfare state is to be secured.

Keywords: German labour market, globalization, part-time work, welfare state

JEL Classification: F60, F61, J61

1. Introduction

Globalization has consequences for the labour market and the welfare state - even in Germany. *The globalisation offers the possibilities for the people to search for appropriate labour positions in cross border scene. Foreign migration represents the significant demonstration of globalisation and at the same time the one of the biggest challenges of 21*st *century* (Bajzík, 2016). *One of the consequences of globalization are changes in a labor market. Special category of the labor market are women, as valuable potential of economic development* (Sulíková & Strážovská, 2016). Mainly through globalization, the labour market is often no longer nationally or regionally limited but a global one, what possibly leads to losses in some sectors of living human labour. The loss of work is at present becoming an anthropological and social problem. In the years 1990-91, 3.7 million people employed in industrial, agricultural and construction industries in Central and Eastern Europe have lost their jobs. During the economic crisis in the years 2008 - 2010, 23 million people were

unemployed in the EU. In the present there are 23.3 million people without work (Eurostat, 2016) of which there are 4.7 million people who are under 25 years of age. (Buchtova, 2016). *Processes of economic globalisation and internationalisation have a significant impact also how gender relations are (re)organised in the labour market and society* (Mitková, Kottulová, 2016). Under various influences of globalization the supply of labour increases in some areas while it goes back in other ones. These influences also include the cost of living, which in Asia is only a fraction of the cost of living in Western Europe and the USA. Accordingly, the difference in wages is also large. *The newest trends of the labor market are partially a result of cyclic movements and especially of the deep economic crisis, however they are also caused by structural and institutional issues of the labor market affecting the economic activity and performance of the labor markets* (Rievajová & Přívara, 2016).

The economic, technological and demographic developments in the globalized world also have an impact on the German labour market. The German labour market seems to become role model example: due to the low level of youth unemployment, the practice-oriented vocational training and a competitive industry. Currently, workers from Germany are in direct competition with international workers of equivalent education. Older workers who are retiring later also sense globalization. *The population ageing concerns all areas of the life of a society and is reflected in a broad spectrum of political measures. One of these measures is aimed to strengthen the position of old people on the labour market and keep them on the market* (Mikušová, 2016). Despite globalization professional and life experience are also a criterion for awarding a job. On the other hand, the labour market is experiencing segmentation as a result of globalization. *The labour market is experiencing a strong segmentation into standard - normal and atypical- non-standard forms of work. Generalized it can be stated that „nonstandard work in on the increase".* (Atkinson, 2015)

All over the world the state economies, mutually interlinked, strengthened and deepened their bounds (Nováčková et al., 2016). The world grows together on the one hand, and on the other hand the differences in income are as great as never before. The countries undercut each other by the lowest taxes and charges, in order to offer companies a cost-effective location. In this context, social policy is ranked high on the political agenda in Germany.

2. Goal and Methodology

Our research is focused on the impact of globalization on the German labour market and the welfare state. We are dealing with the question of how far the introduction of a gross minimum wage in 2015 affected the income growth in low-income forms of employment. We analyze the development of atypical employment in Germany as a consequence of globalization and examine the increase in atypical forms of employment between 1995 and 2012. We use statistical methods to analyse the development of social protection expenditures between 2008 and 2014. The consequences of a globalized labour market for social protection require increasing social transfers to compensate losses of gross wages and provide human services for employed women. Based on a project of the German Friedrich Ebert Foundation the future of the welfare state is inspected as well as the for reform policy.

3. German Labour Market and Globalization

The financial market and economic crises led to a loss of earnings, especially severe slumps in the often cyclically-dependent special payments. On average, these fell by 6.2% in comparison to 2008. In addition, short-time work caused shortages of the gross income

earned. As a result, the monthly basic remuneration decreased by 2.5%. The earnings reductions were partially offset by the government's short-time working allowance. (Statistisches Bundesamt, 2017).

The labour market was experiencing a segmentation as a result of globalization. The labour market is experiencing a strong segmentation into standard - normal and atypical- non-standard forms of work. Generalized it can be stated that nonstandard work in on the increase. This is also related to the quality of working hours. Atypical work enjoys prosperity by the liberalization of working hours and labour market. In addition to fixed-term contracts and part-time work, there are other atypical forms of work, such as undeclared work, brigade, mini and midi jobs, online jobs (the so-called. digital proletariat), zero hours contracts, other new forms of work going through software applications. The common characteristic of these atypical forms is uncertainty, the so-called precariat. It is uncertainty about the work regarding income, housing but also uncertainty about one's own identity.

The Hartz IV laws are the biggest reform of the labour market and social reforms. These laws have introduced new atypical employment contracts, the reorganization of institutions and new forms of business:

- one person share companies (Ich-AGs),
- jobs for one-Euro - jobs with reimbursement of expenses
- installation of job centres as common spots for all unemployed
- establishment of educational institutions called certification agencies
- reform of instruments of active labour market policies (transfer measures and transfer of money in the case of short-time work (Hartz I - IV, 2002-2006).

Table 1 Development of atypical forms of employment in Germany

Year	Employment - dependent activity in 1 000 (B)	Part-time employment as a % of B	Employment at a minimum range as a % of B	Fixed-term employment as a % of B	Atypical employment as a % of B
1995	32 230	16.3	x	7.8	23.7
2000	32 638	19.8	x	8.8	29.0
2005	32 065	24.5	20.2	10.1	34.5
2010	34 459	26.7	20.4	9.6	37.6
2012	35 552	27.0	20.9	8.8	38.6

Source: after Keller, Seifert 2013, Wirtschaftslexikon gabler (2013)

Between the starting level and the dynamics of development of the various forms of atypical employment are large differences.

The introduction of a minimum wage of 8.50 Euros since 1 January 2015 also had positive consequences. In 2015, the nominal increases in the group of unskilled workers (+ 4.1%) were above average In addition, within the types of employment studied, “minijobbers“ (+ 4.6%) had a significantly stronger earnings growth than part-time (+ 3.0%) and full-time employees (+ 2.7%). There are also high nominal wage increases for minijobbers. Overall, the nominal earnings of small employees/minijobbers grew by around 30% between 2007 and 2016, the earnings of full-time employees meanwhile by 22% and part-time employees by 26%). In addition, the earnings of women increased by + 25% over men’s wages (+ 22%). Another reason for the differences in gross tuition fees for full-time and part-time employees is the distribution of the respective types of employment to individual sectors. Part-time employees find themselves increasingly in sectors with below-average earnings. These include, for example, the areas of trade; maintenance and repair of motor vehicles as well as health and social services. (Statistisches Bundesamt, Verdienste auf einen Blick, 2017).

4. Analysis of Social Protection in the EU and the Federal Republic of Germany

The globalization process itself has an impact not only on economic relations in the state, but also on the employment policy and social policy (Bajzíková, 2016). *Since December 2009 when the Lisbon Treaty on European Union (TEU) went into force, it's Article 3, paragraph. 3 commits the European Union to strive for a highly competitive social market economy. In this article of the TEU, the contract follows a number of other provisions which result in a wave of social expectations regarding the future of the European integration* (Šaroch, Šmejkal, 2016). The use of a purchasing power standard (PPS) by analyse of social protection facilitates a comparison of the level of social protection expenditure per inhabitant between countries. These disparities between EU Member States are partly related to different levels of wealth, but may also reflect differences in social protection systems, demographic trends, unemployment rates and other social, institutional and economic factors.

As the impact of the global financial and economic crisis was felt across the EU-28 , expenditure on social protection relative to gross domestic product (GDP) increased by 2.7 percentage points between 2008 and 2010 (see Table 2). The highest proportion of PES - Social protection expenditure on GDP in the EU in 2014 have France with 34.3%, Denmark, Belgium and Austria. Germany has a share of less than 30% (29.1%) and therefore the 6th place. he highest proportion of PES - Social protection expenditure on GDP in the EU in 2014 is the country of France with 34.3%, Denmark, Belgium, Austria. Germany has a share of less than 30% of 29.1% and therefore 6th place.

By contrast, social protection expenditure in Latvia, Lithuania and Romania represented less than 15.0 % of GDP. Within the V 4 countries Hungary, the Czech Republic, Poland have the highest, Slovakia the lowest share of PES to GDP. The highest share within the V 4 states has Hungary before the Czech Republic and Poland, Slovakia had the lowest share of PES to GDP.

Table 2: Development of social protection expenditure

	2008	2010	2012	2014
EU-28	25.9	28.6	28.7	28.7
France	30.4	32.9	33.5	34.3
Denmark	28.9	32.4	32.0	32.9
Belgium	27.7	29.4	29.6	30.3
Austria	27.8	29.8	29.3	30.0
Sweden	27.7	28.6	29.3	29.6
Germany	27.1	29.8	28.7	29.1
Latvia	12.1	18.3	14.4	14.5
Lithuania	15.9	18.9	16.3	14.7
Romania	14.1	17.3	15.4	14.8
Estonia	14.7	17.6	15.0	15.1
Hungary	22.4	22.6	21.4	19.9
Czech Republic	17.9	20.1	20.4	19.7
Poland	19.3	19.7	18.9	19.1
Slovakia	15.7	18.2	18.0	18.5

Source: own processing based on Eurostat, 2017

Within the scope of a project of the German Friedrich Ebert Foundation, questions about the future of the welfare state and attitudes towards reform policy in Germany were investigated and as a result of these investigations, the following findings were confirmed:

Finding 1: A large majority of Germans are of the opinion that social inequality in Germany has now assumed too high an extent and has a negative impact on economic development.

Finding 2: The construction of the core of the German social welfare system along the statutory social insurance schemes continues to be highly popular, but the contribution to the own social security is judged rather critically.

Finding 3: The attribution of a responsibility of the state to the attainment of welfare state goals is still deeply anchored in the German population - as well as the refusal to accept restrictions on benefits and expenditures.

Finding 4: The expansion of social services, equality between men and women and the reconciliation of family and work are seen as core tasks of future reform efforts.

Finding 5: In the acceptance of financing proposals, a striking asymmetry still emerges in Germany: on the one hand the desire for further expansion of the welfare state, on the other hand a limited and, above all, selective acceptance of higher participation in the financing. FES

5. Discussion

A particular importance of Globalization on the labour force has its flexibility and mobility. The flexibility of the labour force is based on the willingness to carry out work in flexible forms of employment and the organization of working time (new forms of labour organization) (Treľová, 2016). Apart from these attributes of globalization are discussed and questioned the following advantages and disadvantages of globalization for labour market and welfare.

Table 3: Advantages and disadvantages of globalization

Advantages of globalization for the labour market	**Disadvantages and contradictions of globalization on the labour market**
Globalization increases the prosperity in industrialized countries.	Globalization increases economic growth and at the same time lowers the labour income of population in certain positions.
Globalization creates competitive advantages.	Serious differences in wages and taxes and consequences for the social system.
Globalization may also be an opportunity for the labour market of developing countries.	Dumping products from abroad make local craftsmen in developing countries unemployed.
Globalization leads to convergence of cultures through the mobility of workforce.	Some cultures feel threatened by a dominance of Western values.
Through globalization, some beneficiaries such as investors, stockbrokers, investment bankers, managers and company representatives earn a high annual income.	Globalization leads to an income gap and the impoverishment of certain population strata and increases demands on the social system.
Retraining of skilled workers in industrialized countries.	Poor prospects of the young generation - generation internship.
Capital invests where the lowest labour costs and, taxes and the highest subsidies are found.	Global wage and social dumping and negative consequences for welfare.

Source: Own processing

6. Conclusion

In the last few years, social scientists have become increasingly concerned with the effects of globalization on the labour market and also the reduction of the share of labour costs in so - called "superstar companies" such as Google, Facebook, and Amazon, which have the highest market shares and reach the highest profits with a relatively small number of workers. Most attention-grabbing undoubtedly became the historically-comparative study of the French economist Thomas Piketty on „Capitalism of the 21st century"(Piketty 2014). More recently, publications have been exploring the impact of increasing inequality on economic growth in national economies, on public health, social mobility within population, educational success, and the impact on social capital or democratic participation. The OECD, in recent publications, also focuses on the consequences of material inequalities on economic growth potentials and less on social or political indicators. Ultimately, material inequality is also a challenge for democracy.

Precisely the wage gap between Western Europe and other parts of the world leads to the transfer of production activities to low-wage countries and increasing inequality.

A politically important question is whether this growing inequality can be attributed to primary income among parts of the population, or whether political instruments of fiscal and social policy can be noticed behind the trend towards growing inequality. The development of the material inequality before taxes and transfer programs as well as after tax and transfer programs varied in the countries of the OECD. In the European crisis countries (Greece, Ireland, Spain) the inequalities in primary incomes strongly increased. Since in Germany the inequality of primary income increases more than the indicator of inequality after tax and transfer, the thesis can be formulated that welfare state instruments are quite effective. However, they are not strong enough to (completely) compensate for the markedly increasing inequality of primary incomes. The disparities between EU Member States are partly related to different levels of wealth, but may also reflect differences in social protection systems, demographic trends, unemployment rates and other social, institutional and economic factors.

If the contemporary economic system preserves its fascination with the productivity-oriented science, the amount of available human labor will continue to decline. And simultaneously there will continue and speed up the process of ravaging the Earth by both manufacturing and final personal consumption (Šmajs, 2016).

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ACTIONS OF POLAND FOR THE UNIFICATION OF ELECTRICITY SECTOR IN EUROPE

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Abstract. The proper functioning of the economy, both global and individual, depends on the efficient operation of the electricity sector. This is a strategic sector, since an economic growth and improving the quality of life are associated with an increase in demand for electricity. Electricity is a product that is specific in terms of production and distribution, and therefore requires specific political, legal and commercial regulations. EU energy policy has evolved under the influence of various factors. There were: global energy crises, environmental threats, rising prices of energy commodities and electricity, achieved level of economic integration in the European Union. Currently, the main goal of Community energy policy is to create a single electricity market. It will result in the integration of national energy markets into single EU energy market. It meets the energy and environmental challenges faced by the EU. These are: ensuring the energy security of the European Community, technological development and constant modernizing of energy system equipment, ensuring clean electricity supply from renewable energy sources, ensuring low electricity costs for customers. In the article, the actions undertaken by the Polish political, economic and energy sectors to integrate with the European system aimed at creating a common energy market are presented. The structure and resources of the Polish electricity production and distribution market are also presented. The political, legal and technical aspects of the integration process are described in the main section. The most important factors holding back the creation of a single EU energy market are also included.

Keywords: common energy market, energy policy, electricity, energy security

JEL Classification: F02, O13, Q42, Q43

1. Introduction

Electricity is a very beneficial and friendly energy medium, which has dominated human development. It is obvious, however, that it is connected with a number of problems. These are, above all, increasing dependence of societies on this energy medium, depletion of natural resources (the basis for electricity production), ecological consequences of its production, as well as economic crises. The electricity market globalisation was to be a form of developing the systems of production, transmission and trade in energy, as well as a form of preventing negative consequences of those systems operation. What does it mean? It is assumed that globalisation is a set of actions aiming at integration of countries, communities, economies, whose purpose is to create a world community. When talking about electricity markets, the integration is considered in a political, legal and technical aspect (Jamasb & Pollitt, 2005; Ki-Hoon, 2015). Electricity market globalisation should be analysed with respect to a given continent, that is, Europe in our case (Pollitt, 2009). The reason behind it is a technical

aspectsince electricity trading is limited to the physical capacity of connecting the power systems (PS) of individual countries. The participants of the connected PS must be characterised by a number of common technical features, ensuring its efficient operation. Different features of individual country subsystems determine the alternativeness of the whole system. In the further part of the paper the authors will present a synthesis of the above outlined features with respect to the Polish system within the global European electricity system.

2. Technical and commercial structure of the Polish electricity market

In technical terms, the Polish PS, similarly to other European systems, consists of two subsystems: electricity production and energy transmission and distribution. The basis of the production subsystem are conventional power plants, in which the electricity production process is based on burning hard or brown coal. The power plants are located mostly in the south-west part of the country, which accounts for the unfavourable distribution of energy sources in the country. Table 1 shows selected overall data of the Polish electricity production system (at the end of 2016).

Table 1: Selected overall data of the Polish electricity production system

Item	2015	2016	Dynamics
	E [GWh]	E [GWh]	[(2016-2015)/2015*100]
Overall production	161 772	162 626	0,53
Utility power plants	141 901	140 727	-0,83
Water utility power plants	2 261	2 399	6,1
Heat utility power plants	139 640	138 328	-0,94
Other renewable power plants	73	146	100,03
Wind power plants	10 041	11 623	15,76
Industrial power plants	9 757	10 130	3,82

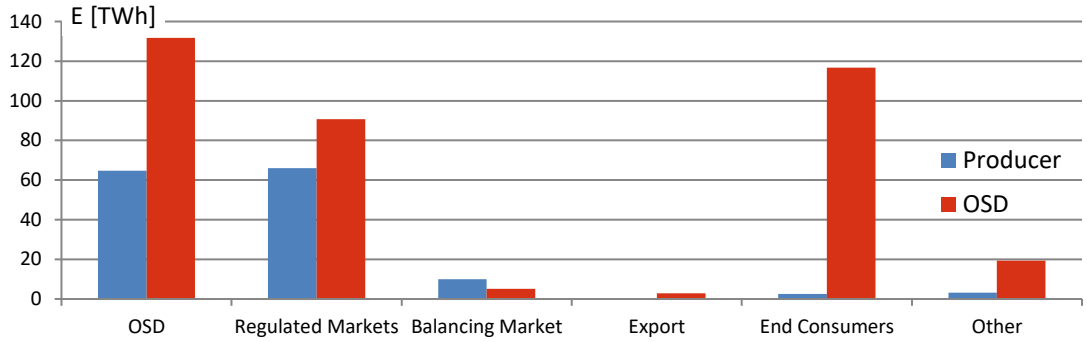
Source: data from PSE S.A.

The electricity transmission and distribution subsystem is represented by two entities: PSE S.A. (OSP) and distribution companies (OSD) – PGE Dystrybucja S.A., TAURON Dystrybucja S.A., ENEA Operator Sp. z o.o., ENERGA – OPERATOR S.A. and innogyStoen Operator Sp. z o.o.

The structure and operational mechanisms of the Polish electricity commercial market are similar to other European countries. Market participants have equal access to the forms of electricity sale available as well as information on wholesale volumes and prices. The main forms of sale for the group of electricity producers in 2016 were regulated markets (mainly power exchanges) and sales to OSD. OSD, in turn, address their electricity sale mainly to other trading companies and end consumers. Fig. 1 shows shares in various forms of sale for the group of producers and OSD.

Electricity trade in the domestic wholesale market is operated under bilateral contracts (OTC market), on the organised market operated by TGE S.A. (power exchange) and through trading platforms.

Figure 1: Forms of electricity sale E [TWh] by producers and OSD in 2016



Source: data of URE

3. Electricity market globalisation – the European and Polish context

At the beginning of its existence, PS were treated by the authorities of various countries in a monopolistic way. Nevertheless, organisations integrating electricity markets have been established. In 1951 UCPTE (Union for the Coordination of Production and Transmission of Electricity) was founded, which comprised countries of western and central Europe. Along with the dawn of neoliberalism, electricity systems became subordinated to market rules. Great Britain was the pioneer in this respect (The Electricity Act 1989). In Poland, the enforcement of the Energy Law (1997) is considered to be the moment when the electricity market started being established. The process of establishing the electricity market comprised the following processes:

- electrical power engineering demonopolisation – division into production, transmission and distribution, and electricity trading subsystems,
- market liberalization – independent companies, being members of the above mentioned systems, cooperate with each other under commercial rules,
- electrical power engineering privatization – transformation of state companies into sole-shareholder companies of the Treasury, and then the sale of shares to domestic or foreign investors.

In1999, Polskie Sieci Elektroenergetyczne S.A. (PSE) responsible for the Polish part of the global PS (transmission networks over 220 kV) joined UCTE (former UCPTE). W 2009, UCTE consisted of 29 transmission system operators from 24 European countries. In the same year, UCTE transferred operational tasks to ENTSO-E (European Network of Transmission System Operators for Electricity). The Scandinavian market (NORDEL group) constitutes a separate part of the European electricity market. Poland (URE) took an active part in the works of ARCE (Agency for the Cooperation of Energy Regulators). It was established under the regulation 713/2009/EC and started its operation in 2011. The main goal of ARCE is to implement the EU policy with respect to the common electricity and gas market, in particular the establishment of a competitive and integrated market, effective technical infrastructure allowing electricity transmission across member states borders, ensuring power supply security for companies and individual consumers as well as monitoring dishonest practices.

Trading in energy at the globalised European market takes place in the form of transactions concluded between individual companies or at energy exchanges (Boute, 2016). The biggest European energy exchanges are EEX (European Energy Exchange) and Nord Pool. Over 130

companies from 16 countries are the participants of the EEX. Nord Pool is a Scandinavian exchange participated by over 120 companies. The most important participants of the European energy market are Swedish Vattenfall, French EdF and GDF Suez, German E.ON, RWE, Spanish Endesa, Italian Enel and Czech CEZ.

The process of consolidating individual energy companies (mainly energy producers and distributors) is aimed to prepare the country for participating in the international energy market and fight off competition from foreign companies on the domestic market.

3.1 Politics and law

Politics and law are two socio-economic aspects which interpenetrate. This rule is also applicable to politics and law within the European electricity market (Verbič et al. 2017, Moreno et al. 2012). In Poland, the most fundamental legislative act within the subject discussed is Energy Law (1997 – O.J. of 2017, item 220). This is the document with reference to which other legislative acts and regulations are laid down. In accordance with art.35, para.1 of the Directive 2009/72, each EU member state appoints the National Regulatory Authority – NRA. In Poland the NRA is the President of Energy Regulatory Office (ERO). It is a one-person, central body of governmental administration. The President of ERO performs his statutory tasks through the Energy Regulatory Office. The ERO, in accordance with the Directive 2009/72, is responsible for the implementation of the EU globalization policy.

Since the EU accession, Poland has been adapting its legislation to the EU law, at the same time pursuing its own economic policy. Apart from primary aims of the European energy globalisation policy (supply security (Nowakowski et al. 2016), competitiveness and development (Korczak et al. 2016), detailed goals are distinctly set (reduction of greenhouse gas emissions (Boersen & Scholtens, 2014; Cerdeira Sento & Moutinho, 2016) a share of energy coming from renewable energy sources (RES) (Aid et al. 2016, Green et al. 2016) in the general energy production and energy efficiency improvement). And it is detailed goals which are the main elements of the discrepancy between the European and Polish policy and law in this respect. The reason behind are different interests of European countries which, when facing a choice between its own and common interest, are guided by particularism. The policy of reducing greenhouse gas emissions and increasing the share of renewable energy sources has encountered the greatest barriers in the Polish energy legislation and in the implementation of European guidelines. The primary causes of that situation lie in the economic aspect. The Polish electrical engineering is very strongly linked with mining industry, and upsetting a certain balance might expose the state to considerable economic and social turbulence. Adopted by 195 countries (COP21, Paris, 2015) the global, legally binding agreement with respect to CO2 emission is hard to implement by all the signatories. Based on the research conducted by Carbon Market Watch, it turns out that only three European countries (Sweden, Germany and France) are on the right track to the implementation of all the adopted provisions within the prescribed time limit. The countries with the biggest delay in the implementation of the provision are, inter alia, Spain, Czech Republic, Italy and Poland (Femke de Jong, EU policy director, Carbon Market Watch). Our country is in favour of reducing allowable CO2 emission limits to be implemented by 2030. Such solutions are unacceptable for the Paris Agreement implementation leaders. The problem, however, is that energy economies of those countries are based on nuclear power plants and RES, and the leaders do not show full understanding of the outsiders' problems. This simple example shows the complexities of interests and political intricacies within the community energy policy.

3.2 Globalisation of the electricity market technical structure

The issue of technical adjustment of the global electricity market is considerably easier as compared with the above mentioned political and legal problems. In general, there is one fundamental requirement in this respect – PS of various countries must be compatible and appropriately connected with each other. Poland has got cross-border interconnections with all neighbouring countries (except for Russia). These are single- and multi-circuit overhead power lines with the rate voltage of 220kV, 400kV, 750kV as well as a cable line of 450kV with Sweden. Those interconnections allow to conduct inter-area electricity exchange in the following commercial structures:

- parallel exchange: SEPS – Polish-Slovak, CEPS – Polish-Czech, 50HzT – Polish-German trading structure,
- non-parallel exchange: SvK – Polish-Swedish, NEK Ukrenergo – Polish-Ukrainian, Litgrid – Polish-Lithuanian.

Table 2 shows the balance of trade of the Polish inter-area electricity exchange E [GWh] in 2013 - 2016 („+“ – export, „-“ – import).

Table 2: Balance of trade inelectricity exchange E [GWh] in 2013 - 2016

		SEPS - PSE	CEPS – PSE	50Hz7 – PSE	SvK – PSE	NEK – PSE	Litgrid - PSE	∑	
2016	+	136	945	804	172	0	436	2493	„-”
	-	11	493	158	2624	957	1070	5313	
2015	+	402	1017	873	19	0	63	2374	„-”
	-	1	155	171	3196	65	3	3591	
2014	+	233	874	504	105	0	0	1716	„-”
	-	9	405	191	3069	686	0	4360	
2013	+	1455	2381	2210	807	0	0	6853	„+”
	-	41	111	199	956	1029	0	2336	

Source: data of PSE S.A., URE

Electricity export from Poland in 2016 amounted to a total of 2 493 GWh and decreased by approx.5% as compared with 2015. This year electricity was imported mostly from Sweden, Lithuania, Ukraine and Czech Republic, and amounted to a total of 5 313 GWh (an increase by approx.48% as compared to the previous year). Import from those countries resulted from low electricity prices present on those markets. This trend has continued for a few years. Import from Lithuania began in 2016 as a result of putting a cross-border interconnection in operation. It is particularly important if we mention the adverse distribution of electricity sources in Poland. What is also distinct is a decrease in electricity import from Slovakia and a considerable difference between the value of electricity import and export in that direction.

In 2016, the market participants expected the biggest market surplus on the borders with Czech Republic and Germany in terms of both electricity export and import. At the same time, the extent of allocated transmission capacities confirms that the transfer capacities allocated to Germany were used to the greatest extent. A similar situation in terms of transfer capacity allocation occurred with respect to Czech Republic.

Electrical engineering infrastructure of cross-border exchange is being dynamically developed. Its expansion and modernisation should be based on the following elements:

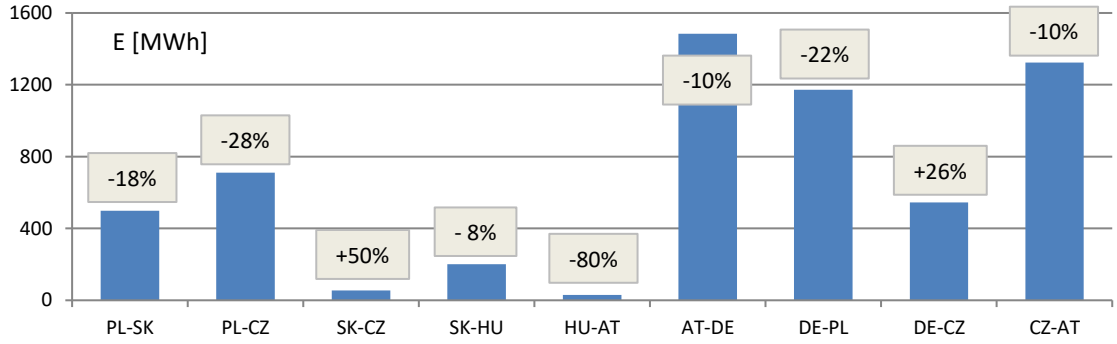
- expansion of cross-border interconnections Poland – Germany and Poland – Slovakia,

- expansion of Poland – Lithuania interconnection (closing of the so-called Baltic Ring – EU Decision no.1364/2006/EC–priority status),
- commissioning of the 750 kV Poland – Ukraine line – agreement of 2014 infeasibility of interconnecting the systems of Ukraine and Moldova to the ENSTO-E system,
- cross-border interconnection of Poland – Kaliningrad (construction of a 400 kV line to connect with the nuclear power plant in Kaliningrad and conventional power plant in Belarus).

3.3 Technical problems of the global electricity market

One of the most important technical problems of the global PS are unplanned electricity flows between systems of individual countries - cross-border physical flows (Antweiler, 2016). That exchange is not reported to OSP, and thus it is not covered by the market mechanism of transmission capacity allocation within the inter-area electricity exchange. Unplanned electricity flows in the Polish connections result from the RES wind generation within the German transmission network as well as from the commercial exchange from Germany to Austria (the exchange is executed also by CEPS and SEPS networks). Those flows considerably limit transmission capacities offered to participants on those borders. It is a very important technical element within the global electricity market. Table 2 shows energy values of such flows between Poland and neighbouring countries in 2016 (increase / decrease in energy value in per cents as compared with 2015).

Figure 2: Energy values for unplanned flows in Poland and neighbouring countries in 2016



Source: data PSE S.A., URE

The above data pertain to unplanned electricity flows between PS of individual countries. They resulted from the wind generation of German PS and electricity transmission from Germany to Austria. The construction of special shifters within the PSE systems caused this phenomenon to minimise (percentage values of changes as compared with 2015). Reduction of transmission is visible on the DE-PL border and further PL-SK and PL-CZ border. Part of that energy was transmitted by means of the DE-CZ interconnection, but to a small extent.

The second drawback of the global electricity market are system failures, also of global nature. A perfect example may be a failure which occurred in northern Germany (UCTE, 2006).The failure was characterised by the domino effect and was triggered by switching off the Conneford-Diele 380 kV line for a ship to safely pass through the River Ems. It resulted in the power supply interruption for 10 million of consumers in Austria, Belgium, France, Germany, Italy, Portugal and Spain. Hence, the global market also means global failures.

4. Conclusion

The paper presents the stage of the European globalisation process on the electricity market and a place Poland occupies within this process. At the very beginning of the summary, the authors want to take a position and answer the question: „is it worth it at all?"The authors believe it is, however, if certain rules are to be observed – on the one hand, the rules of rational particularism, but on the other hand, a sense of community empathy. Reason, calmness and sense of common European good are the features to underlie the tough and difficult global electricity market. The best example is the already quoted issue of CO2 emission by fossil-fuel power plants. European political and economic leaders, ruthlessly forcing through the issue of CO2 emission reduction, must not forget about the production of radioactive waste and radioactive risk connected with the operation of such a power plant system. Therefore, we say yes to the "European electricity market globalisation", but the globalisation which brings benefits and allows all its participants to develop. At what stage is Poland on its way to the common electricity market? Based on the analysis presented in the paper, it appears that a permanent, sustainable technical and legal developmentaiming to achieve this goal is under way. The construction of new cross-border interconnections, construction of new PL-DE phase shifters, advanced plans of opening the Polish power industry to the East are the most important technical activities integrating and strengthening the global electricity market. Participating in European electricity exchanges and construction of the native exchange (TGE) are the steps towards the development of the commercial aspect of electricity. The political aspects of electrical engineering are the most complicated issues. A change in ruling parties entails a change in government policies, including the power policy. For instance, the current legal act on RES is not as attractive and encouraging as the previous ones. Why? Perhaps, persistent promotion of RES in the EU, and only specific kinds thereof, was not the best solution, particularly for Poland. However, such conclusions require time and will. Hence, all the legal intricacies the domestic law had to handle with respect to RES.

To sum up, the globalisation process of the European electricity market is natural and inevitable, however, its scale and pace depends on a number of factors. Despite delays in a few issues, Poland is permanently developing its participation in the European electricity market and such a situation should be sustained.

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EUROPEAN ELECTRICITY CLEARING SYSTEMS

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Abstract. Electricity is the basic energy medium of today's globalized world. The life of entire societies depends to a large extent on the availability, quality and electricity costs. The individual countries have different electricity clearing systems. These systems primarily take into account cost of electricity. However, in addition to it, there are other components that moderate national energy policy. These are, for example, the charges for: reactive energy, the lowering energy quality and also the charges for the development of renewable energy sources. In the article an analysis of the components of electricity costs in selected European countries was presented. Particular attention was paid to the components other than the active energy. In the article the correlation between the components of electricity costs and the policy of particular countries was presented. This type of policy is driven by the need to reduce the energy consumption by industrial equipment and households. A distinctive element in the relation between the components of the energy cost versus state policy is global policy for the development of renewable energy sources. In the conclusions proposed possible actions in the common European energy policy in the field of charges for electricity were presented. Such activities would be part of global energy policy.

Keywords: electricity cost, energy policy globalization, renewable energy sources

JEL Classification: Q41, Q48, L91, L94

1. Introduction

The world (including Europe) takes part in the process of energy markets globalization. In light of the current political and social circumstances, the process is as natural a phenomenon as it is progressive (Jamasb & Pollitt, 2005). Energy markets globalization carries three fundamental aspects: political, social, and technical. While technical aspects are the simplest, they have a profound impact on the two remaining factors. The socio-political aspect is continuously changing – it is determined by the current and forecast geopolitical situation. In a globalized world, electricity has become a basic and leading energy medium – we owe the world's familiar shape and form to it, and for this reason it constitutes a rudimentary component of the political, economic, and financial game. Electricity price quotations are a mechanism applied by politicians and financial experts and institutions alike to regulate economic development and mould the lifestyles of societies (Boute, 2016).

Hereinafter in the paper, its author presents an analysis of unit costs of electricity (UCE) for a selected group of European states. Deliberations have been limited to Europe: for technical reasons, the energy market, electricity transactions included, is perceived as global for purposes of any given continent. The analysis comprises a group of typical countries on

the European electricity market (AT, BE, DE, DK, ES, FI, FR, GB, IT, NL, NO, SE)[8] and a group of Central and East European states (CZ, HU, PL, SK)[1].

2. Cost of Electricity on the Globalized European Energy Market

Across Europe, electricity is supplied to consumers via energy grids of individual states, forming the European global system. Each energy system includes two subsystems serving the respective purposes of generation of electricity, and its transmission and distribution. Transmission and distribution subsystems are practically identical in all European countries – consequently, they can be considered jointly. Electricity generation systems, on the other hand, are vastly diverse across countries, the basic reason tying in with various types of power plants operating to supply individual energy grids. Various types of power plants, in turn, stand for various types of primary fuel used in electricity generation. The use of primary fuels by individual countries depends on a variety of factors, such as geographical location (determining the availability of specific raw materials), and the historical and current energy policies. Tab. 1 shows the percentage share of different primary fuels used to generate electricity (2016) for a group of selected states.

Table 1: Share of primary fuels used in electricity generation in a selected group of states

	HU	PL	SK	CZ	ES	IT	DE	BE	DK	AT	GB	FR	NL	SE	FI	NO
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Solid fuels	13.7	80.2	8.1	59.3	3.8	0.1	37.6	0.0	0.0	0.0	4.4	0.0	0.0	0.3	4.9	0.4
Crude oil (without NGL)	5.5	1.4	0.2	0.5	0.7	15.9	2.1	0.0	49.9	7.5	37.4	0.6	3.0	0.0	0.0	39.1
Natural gas liquids (NGL)	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.3	0.0	0.9	0.0	0.0	5.0
Natural gas	12.4	5.5	1.3	0.7	0.2	16.0	5.5	0.0	27.0	9.3	30.4	0.0	83.5	0.0	0.0	49.2
Nuclear heat	37.1	0.0	64.5	24.5	44.5	0.0	20.7	69.5	0.0	0.0	15.5	83.5	2.3	44.0	34.8	0.0
Renewable energies	29.3	12.9	26.0	15.1	50.8	68.0	34.0	30.5	23.0	83.0	10.1	15.9	10.3	55.6	60.3	6.4

Source: Own analysis against EUROSTAT data

Generally speaking, the cost of electricity used by any given consumer is affected by two factors: UCE [price/kWh] and the value of energy used, E [kWh]. The UCE is determined by so-called energy tariffs – legislation stipulating all and any rules involved in the sales of electricity. The UCE value is affected by the following (Moreno et al., 2012, Yang et al., 2017, Larimi et al., 2016):

- costs of producing electricity,
- costs of distributing electricity,
- taxes and levies.

Energy tariffs differentiate between users primarily with regard to the nature of the consumer (household/ industrial), and the voltage at the point of connection. The UCE may vary depending on the consumer's classification by the type of consumer listed.

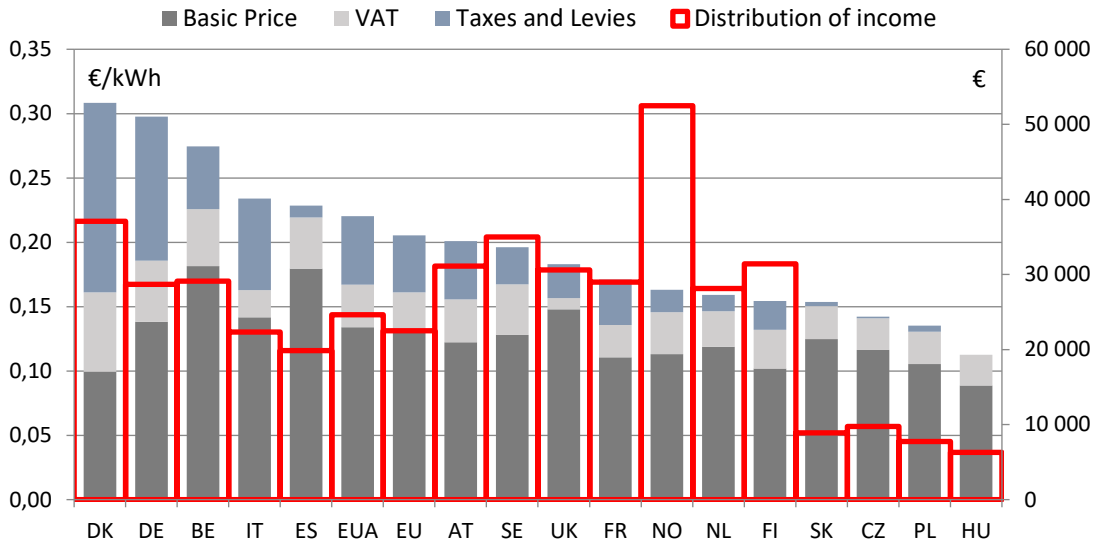
2.1 Cost of Electricity for Household Consumers

The cost of electricity supplied to household consumers in the group of selected states has been analysed against UCE. The European Union documentation provide for household consumer classification by annual electricity consumption rates, with the most standard household adopted for analysis benchmarking purposes (Band DC: 2500kWh < Consumption

[8] State name abbreviations – to ISO 3166

< 5000kWh). Three components have been separated from the UCE: Basic Price (BP), VAT (VAT), and other taxes and levies (TaL). While the BP component is both technical and economic in nature, VAT and TaL are purely economic. Fig. 1 shows values of UCE components listed (2016) for the group under analysis.

Figure 1: UCE components and average income for the selected group of states and households in 2016



Source: Own analysis against EUROSTAT data

For the group of states under analysis, UCE values ranged from 0.1125 to 0.3084 €/kWh. The lowest values were recorded for the following states: HU, PL, CZ, SK; and the highest values were recorded for the following states: DK, DE, BE, IT. The UCE standard deviation reached a value of δ=0.056. The UCE value calculated for all of EU and for the entire Eurozone totals 0.2054 €/kWh and 0.2204 €/kWh, respectively. The BP component is fundamental to the UCE coefficient, its value span ranging from 0.0886 to 0.1818 €/kWh. BP standard deviation reached a value of δ=0.026. The lowest BP values were recorded for the following states: DK, HU, FI, PL (below 1.1 €/kWh); the highest BP values were recorded for the following states: BE, ES, GB, IT (above 1.4 €/kWh). The VAT on electricity has been identified as relatively uniform for the group of states under analysis. The value of the third identified component (TaL) is diverse for the group under analysis, ranging from 0.0 do 0.1474 €/kWh. TaL standard deviation reached a value of δ=0.04. The lowest TaL values were recorded for the following states: HU, CZ, SK, PL (below 0.005 €/kWh); the highest TaL values were recorded for the following states: IT, DE, DK (above 0.05 €/kWh). Calculations of the percentage share of VAT and TaL components as part of the overall UCE for any given country ((VAT+TaL)/UCE) yielded the lowest values (below 20%) for CZ (18.2%), SK (18.7%), and GB (19.2%). The highest values (above 35%) were recorded for DK (68%), DE (54%), IT (39%), and AT (39%). With the VAT component neglected and analogous calculations performed for the TaL component only (TaL/UCE), lowest values (below 35%) were recorded for the following states: HU (0%), CZ (0.7%), SK (2.1%), and PL (3.4%). The highest values (above 30%) were recorded for DK (47.8%), DE (37.6%), and IT (30.4%).

All data as presented and the value-related debate reflect the electricity policy applied by individual states. Low BP cost states can be classified by the following groups: DK, DE, AT (renewable energy sources – wind energy and photovoltaics); SE, NO, FI (renewable energy

sources – hydro power); and SK, CZ, PL, HU (low labour costs). Yet, the UCE aspect is entirely different. With a low BP value, DE and DK have the highest UCE. Additional UCE components are at stake here, allocated primarily to subsidies tying in with producing energy from renewable energy sources (Singh Sisodia et al., 2015, Croonenbroeck & Huettel, 2017). In DE, EEG (Erneuerbare-Energien-Gesetz – act on renewable energy sources) is such a component (0.635 €/kWh in 2016). Its value in DE continues to grow, despite the surplus in the overall EEG budget (e.g. at year-end 2016, approximately 2.9 billion €). The situation is similar in DK. This European renewable energy sources leader has recorded the highest electricity prices and TaL component value alike. Funds generated as part thereof are used as renewable energy sources-related subsidies. In Scandinavian states (SE, NO, FI), the energy system is based on water resources. As their requirements of funding large renewable energy source investments are limited, their TaL component is relatively low in value. Given their proportionately low income *per capita*, the final group of states (SK, CZ, PL, HU) cannot aspire to enforce high TaL component values. In this case, the low cost of labour and of other cost-generating factors determine the overall UCE rates.

The actual cost of electricity depends on individual household costs (Fig. 1). The analysis involves a comparison of annual costs of electricity consumption against household income in individual states, all results shown in Tab. 2. These costs were then referenced against a standard household (type 2+1) by household member. Calculations were based on assumptions of annual electricity consumption of E=3000kWh (medium range: Band DC). Tab. 2 shows the cost by UCE and TaL, values arranged in descending order.

Table 2: Percentage share of electricity costs in household costs total by UCE components and TaL for the selected group of states (2016)

	HU	PL	SK	CZ	ES	IT	DE	BE	EU	DK	AT	UK	FR	NL	SE	FI	NO
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
By UCE	5.36	5.24	5.19	4.38	3.45	3.14	3.11	2.83	2.74	2.49	1.94	1.79	1.77	1.70	1.68	1.48	0.93
By TaL	0.00	0.18	0.11	0.03	0.14	0.96	1.17	0.50	0.59	1.19	0.44	0.26	0.37	0.14	0.25	0.22	0.10

Source: Own analysis against EUROSTAT data

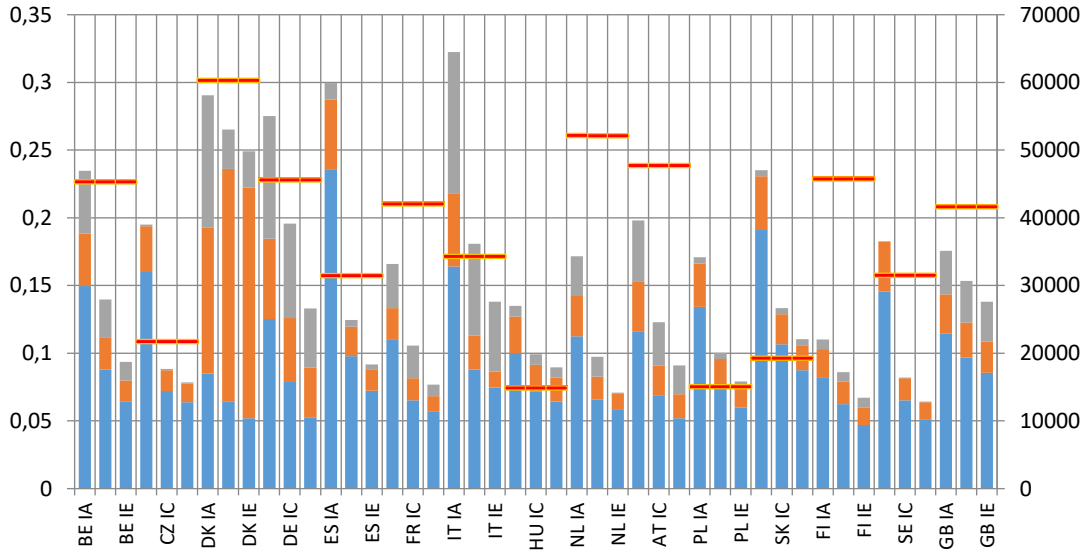
Despite the lowest UCE and the lowest TaL component costs, the residents of group (HU, PL, SK, CZ) carry the heaviest electricity cost burden. The group of states with their energy system based on renewable energy sources (ES, IT, DE, DK) do not differ greatly in terms of percentage. Nonetheless, one ought to expect that once the governments of these states begin fulfilling their promises to withdraw from subsidies tying in with renewable energy sources (e.g. as declared in 2017 by Danish minister of energy Lars Christian Lilleholt), the cost of energy in these countries may become akin to that recorded in Scandinavia (SE, FI, NO).

2.2 Cost of Electricity for Industrial Consumers

Electricity is a medium used across the world's industry. In a simile to household consumers, the analysis of electricity costs for industrial consumers has been based on the UCE. European Union documents provide for industrial consumer classification by annual electricity consumption rates (Band IA<20 MWh, 20 MWh<Band IB<500 MWh, 500 MWh<Band IC<2000 MWh, 2000 MWh<Band ID<20000 MWh, 20000 MWh<Band IE<70000 MWh, 70000 MWh<Band IF<150000 MWh, Band IG > 150000 MWh). Three groups of industrial consumers have been adopted for analysis purposes: Bands IA, IC, IE. Similarly to household consumers, the following components have been identified basic price (BP), VAT (VAT), and other taxes and levies (TaL). In addition, Gross Domestic Products

(GDP) *per capita* values have been quoted. Fig. 2 shows the values of all components identified for the selected group of states.

Figure 2: UCE components for Bands IA, IC and IE, and GDP per capita for the selected group of states, 2016



Source: Own analysis against EUROSTAT data

In the Band IA group, the highest UCE values have been recorded for IT, ES, DK, DE; the lowest UCE values have been recorded for NO, FI, HU. In the Band IC group, the highest UCE values have been recorded for DK, DE, IT; the lowest UCE values have been recorded for SE, FI, CZ. In the Band IE group, the highest UCE values have been recorded for DK, GB, IT; the lowest UCE values have been recorded for. As in case of household consumers, VAT and TaL components are vital to the energy price in DK, DE, IT, with their lowest share recorded for SK, SE, CZ, PL. In the former group, state intervention where countries can afford increasing the TaL for reasons of the low BP component value is apparent.

Each state applies electricity price grading in relation to the actual value of energy used (three consecutive columns for each state – Fig. 2). The smallest differences have been recorded for DK (9% Band: IC and 14% Band: IE, respectively, against Band: IA). The biggest differences have been recorded for ES (58% and 69%), SE (55% and 65%), and CZ (55% and 60%), respectively. In SK and PL, the differences are slightly lower: 43% and 53% / 41% and 54%, respectively. Differences in energy prices between band values are an incentive to purchase higher energy volumes, or to save energy. The actual burden to an industrial consumer may be shown in the ratio of the cost of energy to GDP *per capita*. GDP serves as information concerning economic growth – the financial capacity of businesses. The states with the lowest UCE to GDP *per capita* ratio include HU, PL, CZ, SK, but also DK, with the highest respective ratio recorded for Scandinavian states.The Band IG group comprises consumers with the highest recorded electricity consumption rates. The group comprises i.a. energy railway companies responsible for supplying the power traction. The UCE are relatively balanced in the group, given the wholesale nature of electricity purchase transactions.

3. Additional Electricity Cost Components

As proven in this paper's previous sections, components other than the pure cost of energy are crucial to the UCE. Strictly economic components aside, technology-related factors have

to be accounted for as well. Such components – traditional in industrial consumer tariffs – include reactive power Q [Var] (over the allowable power factor coefficient tgφ value), and cases of exceeding contracted power. It seems that further UCE components include power quality (PQ)-related factors. PQ parameters have been stipulated by European Norm EN50160 and its equivalents in individual countries. Of all PQ parameters, special attention should be paid to those tying in with harmonic voltage and current components (THD and TDD, respectively). These are of particular importance in countries whose railroad transportation uses direct current sources – DC (ES, IT, SK, CZ, PL). The issue arises from high power and voltage consumed by transportation vehicles (Horn et al., 1996, Kawałkowski et al., 2017, Łukasik et al., 2016). Yet a new and widespread consumer has made its way to the energy market: LED lighting (Guilherme dos Santos et al., 2016, Pentiuc et al., 2014). Henceforth, the PQ issue has begun affecting all European states, not only those with afore-described modes of transportation. The author of the paper has researched the National Regulatory Authority (NRA – EU Directive 2009/72) community of individual states in terms of the share of PQ in overall costs of electricity. Selected[9] components of the PQ share in electricity costs have been shown below (2017).

- Slovakia[10] – the price regulation of the electricity supply was applied to: households, small businesses and the last resort supplier regime. The prices for electricity supplied to households consisted of two components, i.e. a monthly payment per one offtake point and a price for electricity consumed in low or high price band. The electricity supplied to households was divided into eight rates. The structure of a final price of electricity supplied to household and to small businesses – active electricity, TSO (tariff for system operation), TSS (tariff for system services), costs of supply and fair profit, electricity transmission incl. losses, electricity distribution excl. losses, electricity distribution losses.
- Czech Republic[11] – while harmonic components (THD and TDD) are not part of the fee system, they remain UCE factors recognised under norm ČSN EN 50160 ed. 3 (corresponding to norm EN 50160: 2010). SAIFI and SAIDI coefficients are recognised in a system of incentives for distribution system operators. Electricity fees have been classified by two categories: not regulated (solutions agreed by and between the seller and purchaser) and regulated (all solutions regulated by the ERU[4] and under the VAT and electricity tax legislation).
- Norway[12] – fees comprise two basic components arising from the energy tariff and grid tariffs, respectively. The former is defined for the electricity market – the latter is largely regulated. In effect, grid tariffs comprise a number of elements. The PQ parameters are stipulated under the EN 50160 – based Norwegian norm. Once minimum requirements are exceeded, the consumer is required to improve the condition.
- Latvia[13] – the cost of electricity comprises the following: the distribution service (power connection, power supply continuity, energy meter maintenance), cost of electricity (generation and supply) and MPC (mandatory public procurement components – support for environmentally friendly energy generation: renewable energy sources and

[9] A full analysis has been planned for the subsequent article on Globalization and Its Socio-Economic Consequences

[10] Úradu pre reguláciu sieťových odvetví / Press & Communication

[11] Energetický regulační úřad (ERÚ), Networks and Market Organisation Unit, Electricity Industry Department

[12] The Norwegian Water Resources and Energy Directorate, The Norwegian Energy Market Regulation Department, Section for network regulation

[13] Public Utilities Commission, Division for Control of Energy Supply Objects, Energy Department

cogeneration). Electricity fees do not comprise any special pre-defined PQ parameters. Should parameters not conform to the UE norm EN50160, the distribution system service tariff is reduced by 50%.

- Bulgaria[14] – there are two PQ-related components contained in electricity fees: SAIFI and SAIDI. They are related to the power frequency and time of electricity supply interruptions (planned and unplanned energy supply shutdowns).
- Estonia[15] – According to the methodology, electricity network charges consist of variable costs, operating costs and capital expenditure. These costs have to be justified. The methodology does mention security of supply and quality topic but it does not go into details. Methodology does not talk about harmonic components, THD, TDD and do not analyse these topics when co-ordinating electricity network charges of a company.

4. Conclusion

The European energy market is undergoing globalization (despite Brexit), the process resulting from the unification of societies and economies of our continent. One might conclude that against the backdrop of other areas of globalisation, the process is rather natural and relatively moderate in terms of potential conflict. Yet the obvious question might be to what extent the absence of conflict arises from the fact that the states that are economically and politically stronger tend to enforce their own solutions. The cost of electricity in EU member states remains of vital importance to the globalization process. The article showcases three selected and current aspects of the issue. In summary, a number of questions should be asked, and an attempt should be made to respond to them. Firstly, is the European market fair in terms of the UCE? This depends largely on the attitude of individual states and their own economic strategies. Electricity promises considerable and certain profit which may be allocated to the funding of a variety of activities – hence the natural wish to use the resource. As shown in the article (Table 2), the cost of electricity remains the heaviest burden for household budgets in Central European countries. The conclusions for industrial consumers are similar, albeit not as unambiguous.

The policy of including diverse components in the UCE displays an obvious feedback mechanism. Wealthy states can afford high energy prices, all profits used to cover outlays for modern and environmentally friendly technologies employed in energy generation. Two states (DK and DE) are technological and political monopolists in enforcing renewable energy sources. Will that road prove viable? The answer will come in several years – as soon as a full balance sheet can be compiled. Under current circumstances, consumers continue funding technological development – yet ministers of energy more and more frequently mention the withdrawal from support for renewable energy sources.

The considerable number of new consumers detrimental to the PQ parameters in the energy system is another noteworthy factor. The issue has not as yet been resolved under EU member state tariff solutions (Section 3 of the article). A continuous decrease of the PQ in the energy system should be expected, potentially resulting in large-scale power shutdowns. It seems that making the factor part of the tariff system could well become a measure to alleviate the process of continued PQ impairment.

[14] Energy and Water Regulatory Commission, Department Electricity and thermal power sectors, Section Prices and licenses: power grids, trade and markets.

[15] Department of Energy and Postal Communications, Estonian Competition Authority

In closing, one might wish for our future to be bright thanks to electricity, among others at as low a price as reasonably possible.

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EDUCATION IN RUSSIA: FROM NATIONAL MODEL TO THE GLOBAL ONE

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Abstract. Education, able to provide the full amount of knowledge in a certain field almost impossible. In this regard, the category "profession", which traditionally refers to a specialization of knowledge narrow focus, is also irrelevant. The rate of accumulation of information, formation of new directions of development of science, the emergence of socio-economic, scientific-technical, cultural, and environmental issues, otherwise known as challenges, grows so fast using the standard, typical, traditional, classic algorithms for solving problems cannot provide adequate changes in the external environment and internal needs of any business entity, including educational institutions, rational, optimal and effective management decisions. It is therefore obvious that the institution of higher education cannot be provided on the markets of vacancies of a professional, ready in all respects. Speed upgrade educational programs and curricula significantly below the rate of appearance of new requirements to education of bachelors and masters. Thus, the training of specialists in educational institutions of higher education are reduced mainly to the provision of the required set of standard competencies, and their rational use in a variety of situations, based on personal interests, aspiration to career growth, self-education, self-study, self-organization and self-management. The response to these challenges should become a new global approaches to the educational process, which determine changes in the content of work of teaching staff. Educational resources in such conditions must also be changing, and the rate of self-training, self-education, training human resources of educational institutions higher education should be higher than that of students.

Keywords: academics, innovations in education, the Bologna Declaration

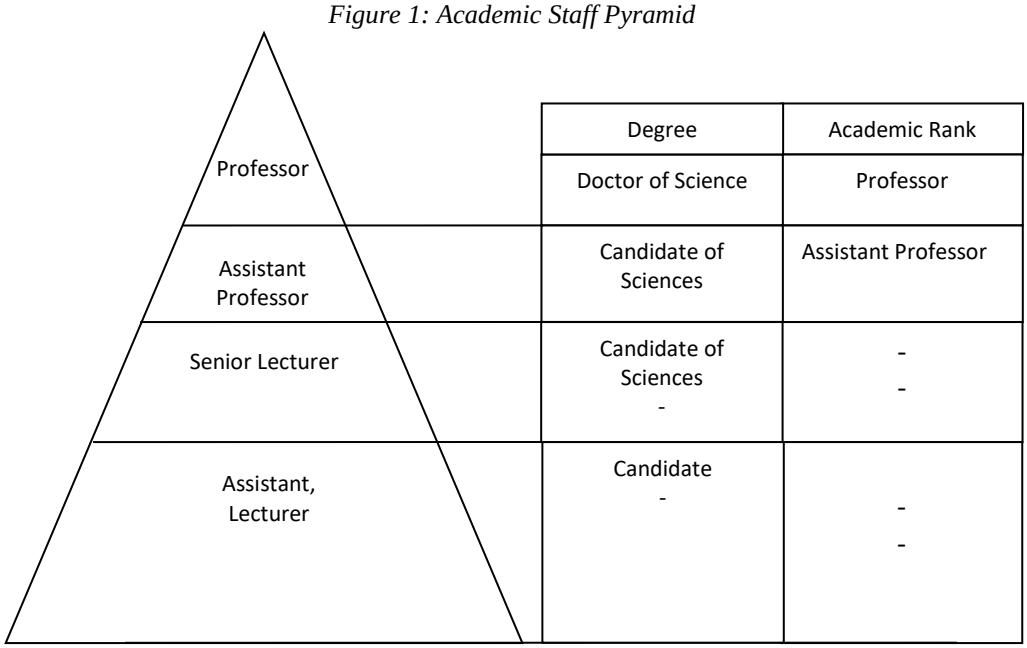
JEL Classification: I20, I21, I23

1. Introduction

The academic staff of higher educational institutions includes the academics, which forms a kind of multi-level hierarchy of positions. So, there is an assistant and a teacher at the lower level; at the second level this is a senior teacher; at the third level this is an assistant professor; at the fourth level this is a professor (see Fig. 1.1).

According to such documents as the "Unified Qualification Reference Book for Positions of Managers, Specialists and Employees" and the Order of the Ministry of Health and Social Development of Moscow No. 1n of 2011/11/01 "On Approval of the Unified Qualification Reference Book for Positions of Managers, Specialists and Employees", the qualification characteristics are defined regarding the positions of managers and specialists of higher and continuing education; for each position, the specific tasks or job descriptions are defined (The Unified Qualification Reference Book for Positions of Managers, 2016)

Figure 1: Academic Staff Pyramid



Source: Own research of the authors

Despite the fact that in the "Unified Qualification Reference Book for Positions of Managers, Specialists and Employees" such a position as a teacher is represented, in the Russian pedagogical science and practice the concept of a teacher is considered in a broad sense and designates the entire academics, otherwise, the pedagogical staff, academic staff. Thus, a teacher is a person who carries out teaching activities in the tertiary educational institutions (Ivanov, 1997). There are no service personnel who create working conditions for the academics.

Hence, by analogy with the economic entities carrying out production (of any product), the labor resources or the university personnel should be divided into the main (the academics), auxiliary, serving, and managerial staff. That is, the teachers carry out the main process in the university, the educational process. However, the difference between the pedagogical activity and the production activity consists in its orientation and the labor productivity degree, as well as in the essence of the elements.

So, for example, engineering and technical workers in their production activity use labor objects (incoming resources, spare parts, semi-finished products, units, mechanisms) and create the final product having its prime cost and material value. This product is offered to the customer markets at a particular price, has its own degree of competitiveness and, consequently, demand. And, if the demand is below the break-even point, then the economic entity withdraws from the occupied market gap, unable to withstand competition, since the

transferred value created by past labor and the added value created by living labor are higher than competitors', and do not correspond to the declared level of the product quality.

2. Body of paper

The teachers' professional activity can be viewed from several points of view as a set of processes that are carried out in parallel or in series parallel.

First, this is a process, in which the subject of labor is the input or primary information (research, educational, popular, pedagogical) on any media that is utilized, processed, systematized, analyzed, visualized, ranked by some features. As a result, we obtain the output secondary information, which can be presented in the form of actual data, ideas, hypotheses, decision algorithms, various tasks, as well as new concepts, principles, theories, and problem solving algorithms depending on the teacher's skills and competencies (Khusainova, 2017; Kiselev & Pljushcheva, 2017; Kiselev et al., 2017; Kiselev & Savinkov, 2016; Kiselev et al., 2016).

The first input information is used in the educational process, and the teacher acts as a certain transmission channel or a repeater, who renders the primary information from unnecessary data and raises its reliability. The newly created information allows us to view the teacher as a researcher (confirmed by academic degrees and ranks) (Kiselev et al., 2016; Pljushcheva et al., 2016). Therefore, in literature and in practice, the term "research and pedagogical staff" is applied to the teachers of higher education. However, in Russian pedagogy there is no single definition of this concept yet. Thus, the research and teaching staff is the academics and researchers, who are the main permanent staff of the higher educational institution.

However, from our point of view, in this definition, two types of employees of a higher educational institution are first divided, and then combined. The first type is the academics (the teaching staff), which carries out pedagogical and research-teaching activities. Recently there has been an increase in the need for research, which is due to the impact of the requirements of the Ministry of Education to the structure and number of scientific publications, their citation index.

The second type of research and pedagogical staff of higher education institutions are the researchers, who conduct research activities in laboratories at universities, carry out research funded both from the state budget and by economic contracts. The first type differs from the second one in that the academics carry out all types of activities listed in the definition. And the second type is engaged in only the research activity. The increase in the share of the researchers especially occurred in those universities that acquired the status of R&D. Thus, a researcher is a citizen who has the necessary qualifications and is professionally engaged in scientific and/or scientific and technical activities (Ivanov, 1997).

In other sources, the researchers are academicians, full members; corresponding members of all academies; all persons having academic degrees and ranks; persons conducting research and development work (R&D) in research institutions, as well as the research and pedagogical work at the universities; experts, systematically leading research work at the industrial enterprises and project institutions (Van, 2017).

In our opinion, this definition of the researchers does not include the academics, which also include assistant professors together with the professors. Therefore, according to this definition, the researchers conduct research and pedagogical work at the universities; and it

can be concluded that the main difference between the researchers and the academics is that the researchers have secondary employment at the university, then the academics work there on a permanent basis, but both are engaged in research and development.

To that end, at the universities, in relation to the teachers there is also a definition of the academics that are part of the concept of "researchers". Therefore, according to many researchers, in high school one generalized concept should be applied, that is the academics, including the teaching and pedagogical staff and researchers of the research departments of the university (Erzhanova, 2006).

There are various opinions in the scientific literature that, firstly, the research and pedagogical staff are a special group of the research personnel, who are united by the nature of their activity and characterized by a combination of pedagogical and research activities (Kochetkova, 2012). Secondly, these are a complex, internally differentiated social education, consisting of various professional, qualifying and job groups that differ significantly in the nature and content of labor, in the areas of research, in relation to production and practical activities, and in the role in the development of intellectual culture (Ivanov, 1997). From our point of view, the research and pedagogical staff of the university are united in a group or faculty precisely on the basis of the commonality or uniformity of the nature and content of pedagogical work as a profession, but at the same time, the research personnel can differ significantly in the fields of research. Relations with the production and practical activities can be due to two factors. The first is the need to guide the students' practice, to learn advanced production experience and to use its results in the educational process in the form of business situations, cases, practical tasks. The second factor is aimed at studying the production as an object or subject of the research, either on its own initiative or on the state budget order.

The role in the development of the intellectual culture can be differentiated conventionally in terms of the impact on the students' culture, as well as the increase of their own cultural level. Hence, the teaching staff is a part of the research and pedagogical staff, including the researchers and advanced qualified personnel (Konstantinovskiy, 2017), (Moseykin & Sakharchuk, 2017). The main features of work include the relationship between a teacher and a student, who until recently represented subject and object relations, where the teacher was a subject, and the student was an object of research, influence or management. After the appearance of the State Federal Educational Standards, the form of relations changed into subject and subject relations, when the students choose disciplines from the variable part of the curriculum and, consequently, are the subject of their own educational activity for the purpose of self-education, self-development and self-improvement.

The use of the potential of the student, his interest in the educational process, the need for the result of the studying process is the main requirement or condition of any pedagogical process, especially relevant in higher education, when the subject is involved in the process and has his own psycho-physiological characteristics and social position. As a result of these circumstances, it is obvious that only a part of graduates of higher educational institutions receives a given qualitative result with a high degree of probability. To receive the expected or planned result of the work, the teachers need to rationally organize the process of working activity, as the most important form of life of teachers. This process combines the following basic elements or components: a person (a teacher) as a subject of labor activity; objects of labor, for which the basic labor conditions are directed; means of labor, with the help of which the man-made (teacher's) influences on the objects of labor and implementation of

labor efforts are carried out; labor conditions, representing all the material, energy and information factors in which the teachers' labor activity takes place (Sedov & Valiev, 2017), (Sivak & Yudkevich 2017).

In our opinion, this definition of the labor conditions is not a full-fledged one, since, apart from material (material and energy factors) and information types of provision, it is necessary to take into account the availability of financial, human resources, and fixed assets. Moreover, the definition lacks socio-psychological, economic and legal conditions created with the help of the appropriate management methods. Hence, the labor conditions are a combination of resource support and methods of influencing a person (a teacher) that provide the opportunity to fulfill labor duties (efforts). A set of objects, means and conditions is a subsystem (a part of an entire system), called an environment, another subsystem is a person (a teacher), who together with the environment forms an entire man-environment system (Yanckovsckaya, 2016). In our opinion, the concept of the environment is much broader and in addition to the labor environment includes domestic, transport, natural, scientific and technical, cultural, economic, regulatory and legal environment.

In this study, the teacher's environment is understood as a part of the environment limited to the teacher' professional activity at the university, provided with all kinds of resources and subject to various management (impact) methods.

The labor conditions can affect twofold the implementation of the labor efforts, duties or tasks of the teacher. On the one hand, they allow the teacher to increase the capacity or potential and rationally use it. On the other hand, they limit this research and pedagogical potential and the degree of its implementation in the process of the professional activity. There are several types of classification of the labor activity, which take into account, first, such features as the degree of physical and mental activity, and, secondly, the degree of application of various means of labor (Gryazev & Arkhipova, 2014).

According to one of these types of classification, a person's labor activity can be divided into the following types: physical, mechanized and automated labor, mental (intellectual) labor, and other kinds of human activity. The intellectual labor includes such categories as engineering, managerial, research, teaching, and creative labor.

A feature of all these categories is the need to search, process (comprehend) a large volume of diverse input information both from external and internal environments, for example, from the higher education institutions over a long period, and then develop solutions, innovations in the form of the output information. The results of the intellectual labor can manifest itself or be realized after a long time after the termination of the labor activity. It is believed that the teaching labor is characterized by the transfer of knowledge from teachers to students (Smolentseva, 2017). In our opinion, this is an outdated view, since the essence of the teachers' labor has now changed. Their labor has transformed from the information transmission channel of knowledge that the teacher has to more research and creative type, during which fundamental and applied scientific research is carried out and implemented in specific fields of activity. Thus, in the process of labor, the teacher exercises both teaching activities and applied scientific research more than fundamental one. The creative labor is characterized by the creation of new works in any sphere of the scientific, technical and humanitarian branches, regardless of the volume, a form of creation and type of medium of the work, so it can be called innovative labor.

A feature of the teachers' labor is that according to another classification, it refers both to creative and to reproductive labor, because the creative labor is characterized by the

continuous search for new ideas, hypotheses, solutions, the identification of other aspects of known issues, and the active development of independence and initiative. At the same time, a significant part is repeated regarding the teacher's duties, as well as the educational process tasks. Therefore, the repeatability of means of achieving results (including teaching methods, problem solving algorithms) requires the attribution of the teaching labor to the reproductive type. Environmental factors have a great influence on the content of the professional research and pedagogical labor; especially it concerns to the economic environment, in which there are many problems called challenges from the economy of the higher education (Robertovich et al., 2017).

Such problems (challenges) include the following: the need for a balanced, proportionate and effective allocation of productive forces in the constituent territories of the Russian Federation, and, accordingly, adequate solution of social objectives; need for a new stage of industrialization, which consists in reducing the level of depreciation of fixed assets through the introduction of innovative technologies and equipment; need for high-tech industries in those segments that are growth points or locomotives of territorial innovative development; need for structural changes allowing the introduction of import substitution, increase the share of innovative, high-tech goods in exports; need for increase the volume of funding for research and development, especially the fundamental one, increase the pace of development of the sciences, which are the basis for innovation in production and economic activities; need for increase the productivity of social labor and increase resource-saving as the basis for an efficient economy; need for rational use of information and computer resources in all spheres of socio-economic activity.

All these issues require their adequate solution, including on the basis of relevant changes in the higher education. The scientific literature suggests the use of a reactive method for planning and implementing tasks that contribute to solving these issues on the basis of structural and qualitative changes in educational processes in higher education institutions. So, for example, in the Russian Federation, after transitioning to a multi-level system of higher education and refraining from training specialists, most students prefer to graduate only the first stage of the higher education, the bachelor's degree. This situation is confirmed by the requirement of employers for the higher education as a necessary level of specialization, due to the presence of a certain minimum of knowledge, skills and competencies. And, at the same time, the demand for graduates with a master's degree is much lower in the labor market, although for a further innovative, intensive, balanced and effective development of the economy, it is necessary to form a layer of the so-called intellectual elite of the new generation, which has a wide range of competencies, skills and knowledge in the use of techniques, methods, means and tools (mechanisms), algorithms for high-performance and effective professional activity, and often not in one field of knowledge, and in several adjacent ones. These conditions lead to a significant change in the teachers' labor. The researchers of the modern state of the higher education came to the conclusion that the transition of humanity to the new realities of the postindustrial information era will require long-term (for several decades) changes in the education system; and they will be more significant than all the previous ones that occurred for more than three hundred years. The scientific literature indicates the reasons that influence the innovativeness intensity and degree of changes in education, including the higher education (Kiseleva, 2013).

Thus, the modern society is distinguished by the presence of a new layer of educated employees or personnel, who have not only the higher education but are fluent in several foreign languages, information and computer technologies, modern research, analysis and

information processing methods and are highly intelligent personnel in state and private companies, transnational corporations, meet the requirements of the economic globalization.

Further, after the Bologna Declaration on Higher Education of 1990, the structure of disciplines, the requirements for the content of the educational process, its duration, the level of competence of graduates have changed in accordance with the principles of the international educational space development and the creation of open labor markets. Such principles include mutual trust of the higher education institutions to the higher education quality, transparency of curricula and plans, recognition of competencies and qualifications obtained by the university graduates in some countries by employees of other countries (Burtsev & Zvonova, 2006), (Gretchenko & Gretchenko, 2017). In addition, back in the late 70s, in one of the reports to the Club of Rome, the issue was revealed regarding the inadequacy of content and results of traditional teaching, its principles and objectives to the requirements of the current stage of social and economic development in most countries of Europe, Asia and America, possessing similar educational spaces, national politicians in the higher education, as well as the requirements for the education quality (Botkin at al., 2014).

Another reason is the demands of labor markets to the graduates' qualification for new directions. The higher education system does not have time to respond to these demands. In this regard, the graduates, who have received competencies and knowledge in one particular area, often carry out their activities, career growth in completely different spheres. This is especially noticeable among sellers and bank employees, most of whom have bachelor's degrees in law, linguistics, engineering, teaching, management. In addition, the dynamics of changes in the labor markets under the influence of crisis phenomena necessitates a change in the professional activity in three or five years.

3. Conclusion

Hence it can be concluded that it is practically impossible to train the graduate so he or she has a specific amount of knowledge in a certain direction. The concept of "profession", which traditionally refers to the specialization of knowledge of a narrow focus, is no longer relevant.

The speed of the information accumulation, the new directions formation in the development of science, the emergence of socio-economic, scientific, technical, cultural, environmental issues, otherwise called challenges, is growing so rapidly that the existing standard, typical, traditional, classical problem solving algorithms can no longer provide rational, optimal and effective management decisions, which are adequate to the changes of the external environment and internal needs of any business entity, including a higher educational institution. Therefore, it is quite obvious that it is impossible for a higher educational institution to provide the labor markets with a developed professional or specialist. Only practical activities in a particular industry or field of activity will allow the graduate to obtain those specific solutions that cannot be envisaged in the learning process, since the rate of updating the curricula, the emergence of new areas for training the bachelors and masters is much lower. Therefore, the tasks of training the graduate with professional and territorial mobility are reduced to providing the necessary level of competence and skills for obtaining knowledge, their rational use in a variety of situations, based on an individual focus, personal interests, relevant career aspirations based on the continuing self-education, self-organization and self-management during the labor activity. Hence follows the conclusion that all listed reasons or challenges of the higher education and the requirements for the student cause changes in the labor essence and content of the teaching staff. The teacher

should also become a student in such conditions, and the rate of his or her self-training, self-education, advanced training should be higher than that of students, including a higher degree of interest, a desire for innovation, in the educational, scientific, disciplinary, and other processes.

In our opinion, the scientific literature shows the educational activity paradigm change, which consists of such components as objectives, values, ways of implementation, participants of the educational process, management of the educational process, provision, monitoring and evaluation, attitude to professional activity (Melnikov & Gorelov, 2013). The paradigm (from Greek Paradigma is "pattern, example, sample") as the initial conceptual framework, the model of posing problems and their solutions, research methods prevailing over a certain period in a scientific society, directly relates to the process of the teachers' labor, its essence, forms, methods, means , conditions, nature, techniques of evaluation of the professional potential and the results of the teachers' labor as a measure of their professional potential implementation (Gryazev & Arkhipova 2014). There are several paradigms in the modern Russian scientific literature. Let us consider this in the next article.

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FOREIGN TRADE BANS AGAINST RUSSIA AND ITS CONSEQUENCES

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Abstract. One of the major protective measures – embargo and bans against Russian economy and Russian products have brought ambiguous consequences for Russian economy as well as the partner economies, exporters and importers. The authors clarify theoretical approach to a variety of possible measures and effects concerning foreign trade sanctions. Several challenges and possible weaknesses of the bans and their desirable effects are outlined, predominantly applied on sanctions against Russia. Research part of the article identifies and quantifies major effects of both sanctions on Russian economy stemming from the sanctions against Russia in the field of foreign trade. Special attention was devoted to identify "side effects" of the bans on Russian economy and the changes within domestic production, industry structure and import substitution. General assessment of the sanctions is characterized as well as recommendations for the policy makers of European Union related to further approach towards Russian bans and its effect on the competitiveness of European companies are formulated.

Keywords: embargo, foreign trade, sanctions and bans

JEL Classification: F51, F41, F60

1. Introduction

Russia has been one of the leading economies in the world for a long time. During 2014, western economies led by the USA and the EU decided to impose several sanctions in the field of foreign trade as a counter-reaction to the development on Crimea. Initially, sanctions intended to stimulate Russian politicians to change the political approach. Comparing initial goals, real effects of the sanctions seem to be ambiguous. Russian retaliatory measures have indisputably negative consequences for the European exporters. Despite having substantial importance for the EU members, the authors exclude direct effects of sanctions and counter-sanctions on western countries (mainly the EU). The main goal of the article is to analyse major effects of the sanctions against Russia since 2014 in the field of foreign trade and subsequent structural changes within Russian economy. Secondary, authors try to characterise effectivity of the sanctions through in-depth analysis of Russian foreign trade, especially import changes before and after imposed bans from the western countries as well as Russian counter-sanctions.

1.1 Foreign trade sanctions – theoretical framework

More authors have dealt with the effectiveness of sanctions by examining the relationship between the actual result achieved through imposed sanctions and the impact on foreign trade

(K. A. Elliott, 1999, R. A. Pape, 1997 and W. H. Kaempfer and A. D. Lowenberg, 2007). Majority of economists criticize the sanctions for their low efficiency and the fact that target countries affected by sanctions are from the long term, generally able to adapt by the ability to divert the desired effect of sanctions and for their export production relatively quick finding of alternative markets avoiding import controls and procedures (R. Caruso, 2003). A study of G. C. Hufbauer, J. J. Schott and K. A. Elliott (1990) investigated the sanctions despite the failure to identify the clear relationship among the investigated variables and to conclude convincing solutions. There was identified also a link between the effectiveness of sanctions and costs of these penalties (J. Dashti-Gibson, 1997). Several important works point to better negotiation power and "leverage" in favour of sanctions when trading with the concerned trading partner was intense (A. C. Drury, 1998 and R. A. Hart, 2000). Time represents a significant factor under the current sanctions - M. S. Daoudi and M. S. Dajani (1984) conclude that the effect of the length of sanctions is negatively correlated with their success: long-term sanctions generally bring more efficiency than short-term, however, several other authors come to a completely different conclusion: sanctions negatively correlated with the access score of these measures – G. C. Hufbauer et al. (1990), P. A. G. van Bergeijk (1994). A considerable uncertainty about the effectiveness of the EU sanctions is also given by S. M. Bolks and D. Al-Sowayel (2000) or I. Nooruddin (2002) regarding the degree of democracy in the sanctioned economy. These authors come with empirically based conclusions that the more the domestic government autocratic is, the lower effect of the success of foreign sanctions it brings. The authors of H. Chingono, M. Hove and J. Dandy (2013) dealt with the influence of globalization. The authors found that globalization makes sanctions ineffective by allowing countries to survive through trade, cooperation, multilateral or bilateral loans. From a political point of view, sanctions are the most effective against friends and allies. Most authors agree that sanctions generally have low efficiency and are criticized, especially when it comes to large economies. In addition, sanctions against Russia have not affect the most prominent part of Russian foreign trade - energy carriers. Theoretically, penalized states will find a way to avoid the negative effects of sanctions over time and find alternative markets with new business partners.

2. Methods

According to the set objective of the article, in depth analysis of the foreign trade of Russia was applied. Authors use own research of the primary data and calculations using MS Excel and Minitab for the purpose of dependency analysis. As for the primary data, database of International Trade Centre (2017) is used at the HS 4 digit level and at the level of tariff line. Within comparison, authors use mainly research methodology of R. Giucci and R. Walter (2017) and WIFO (2016) as well as methods used by K. A. Kholodilin and A. Netsunajev (2017) described below.

3. Results and discussion

3.1 General trends in Russian foreign trade

After 2013, the foreign trade of the Russian Federation underwent major systemic changes manifested in the volume of individual product groups. In general, highlighted might be free main factors influencing such dynamics of Russian foreign trade:

1) Oil prices drop since the second half of 2014 (C. Dreger et al., 2016)
2) Penalties by the "western" countries directly and indirectly affecting Russian import

3) The Russian Federation's reciprocal sanctions

Russian goods exports fell year-on-year by almost 31% in 2015, down by 17% in 2016 reaching almost 50% in the dollar terms compared to 2012. Russian imports of goods dropped sharply in 2015 by almost 37% to the value about 182 billion. However, in 2016 its level remained almost constant (drop by 0.29%). Surprisingly, the export performance of the Russian economy in domestic currency has different parameters - in 2015 with a paradoxical import growth at 2.61%, in 2016 even a year-on-year increase at 9.75% to 12.2 billion. RUB. Export performance of Russian companies, the trend was very similar: in 2015, Russian exporters recorded a year-on-year increase of up to 11.1%, followed by a year-on-year decline of about 8.6% in 2016 to the value of 19.0 billion. RUB. The balance of the foreign trade of the Russian Federation developed adequately. Together with long-term positive developments in commodity prices headed by oil and natural gas, Russian foreign trade was permanently active in the trade balance between 2012 and 2016, from a level of 208.6 billion USD in 2012 to a record low surplus value of 161.1 bill. USD to the lowest level of 103.2 billion USD.

3.2 Analysis of the consequences for Russian foreign trade

The EU, the USA and more, mostly economically developed countries decided to trigger a set of "Western sanctions" over exports of military and dual-use goods to Russia. Especially European policymakers have taken advantage of Russian economic dependence on the EU to squeeze Russian economic activity and to lower long-term growth prospects (E. Jones and A. Whitworth, 2014). Russian political leaders decided to apply retaliatory sanctions, mainly in the agricultural sector and food industry. In principle, any sanctions of this kind have a negative effect on foreign trade and effectivity of the production. Despite a difficult task to differentiate an effect of plummeting oil prices since 2014, the main consequences of the sanctions and counter-sanctions can be investigated in following areas:

I. Simple estimation of the effects
II. Foreign trade analysis of the sanctioned goods
III. Changes within Russian economy as consequences of banned foreign trade operations

3.2.1 Simple estimation of the effects on Russian foreign trade

Within a simple estimation approach, we investigate the effect of the sanctions and analyse the dynamics of the foreign trade with sanctioning countries (related to "western sanctions" and Russian reciprocal sanctions). Estimation is realized in three aspects:

A. Estimation based on foreign trade decrease with sanctioning countries

For the comparison of the foreign trade extent before and after the placement of the sanctions, changes in the volume of Russian export levels between 2016 and 2012 were compared. Globally, Russian exports, primarily due to lower commodity prices, slowed down by 45.6% during the period (foreign trade exchange was cut by 133.9 bill. USD). Concerning the effect of western sanctions limiting their exports to Russia, exported volume from the sanctioning countries decreased by 47.0%, while exported goods from non-sanctioning countries by 36.8% only.

Table 1: Estimation of the sanctions´ effect for "western countries" exports

	Imports in bn. USD		Change in bn. USD	Change in %
	2012	2016		
World	316,2	182,3	**-133,9**	**-42,4**
Sanctioning countries	172,5	91,4	**-81,1**	**-47**

Non-sanctioning countries	143,7	90,8	**-52,9**	**-52,9**

Source: authors´ calculation based on ITC data

Data of Russian foreign trade in rubles seem to provide a completely different picture of the dynamics: overall Russian exports rose by 25.1%, however, relevant imports grew by 24.2%. The consequences of the sanctions are ambiguous in case of this statistics – imported goods increased from 9.8 bn. RUB up to 12.2 bn. RUB despite imposed sanctions from western countries as well as counter-sanctions from Russian side disqualifying western agro- and food sector. Particularly, between 2012 and 2016 Russian imports from the sanctioning countries rose by 14.3%, reaching a peak value in 2016. Using domestic currency, merchandise imports have been not seriously affected.

B. Estimation based on foreign trade decrease adjusted by oil shock compared to a similar economy (Kazakhstan)

Several authors consider comparison of Russian foreign trade to the trade of a similar oil exporting country to be an appropriate method to investigate and derivate the effect of sanctions on Russian economy itself (Berlin Economics, 2017). For this purpose, we analysed foreign trade of Kazakhstan, hence the authors of the study (Berlin Economics, 2017) found a negative effect of the sanctions on the EU exports to Russia as high as 23% or 11 bn. € loss between 2013 and 2016. According to the results comparing the economies, there is a clear difference between the imports which can be attributed to the bans. Using a simple and limited estimation, the sanction for the exportation of particular goods from western countries and reciprocal sanctions imposed by Russia, imports decreased considerably faster (61% more intensive impact than in case of Kazakhstan) by 81.1 bn. USD in case of sanctioning countries. Nevertheless, Russian imports on a global level were determined in even slightly higher rate than those heading to Kazakhstan (-42.4% vs. -43.5%). Roughly, sanctions are responsible for the decrease of Russian imports as much as 30.7 bn. USD.

3.2.2 Analysis of the foreign trade - "western sanctions"

Western countries (mentioned above) decided to trigger economic sanctions in the field of foreign trade following the shooting down of flight MH17, on July, 31st. Besides bans related to Russian banking sector, western countries imposed an arms embargo and an export ban on oil technology and services that could be used for Arctic or deep-sea drilling, or shale oil projects as well as an export ban on dual-use goods – equipment such as specialist computers or heavy engineering vehicles – possibly used for military purposes.

The development of the foreign trade of the Russian Federation should be divided into two sectors - export of military equipment and export of non-military goods. The impacts of the EU sanctions on exports and imports of military equipment are to some extent eliminated by the fulfilment of older still valid contracts. The impacts of "western" sanctions on Russian arms exporters will not be much negative in the long run. From 2010-2014, the Russian Federation gained 27% of its share of global arms trade (from its original share of 22% in the previous period), Russia's main trading partners in this area are India (39%), China (11) %) and Algeria (8%). The import of military equipment in the case of the Russian Federation was particularly affected by a politically motivated decision of France to cancel the supply of Mistral ships worth approximately 1.1 bn. € as well as by dismantling the supply of the training center for the Russian Army from Rheinmetal. On the other hand, through NATO enlargement, the former traditional Russian military technology purchasers (former Warsaw Pact Member States) will be replaced over some time - mainly by importing military technology from the US, to a lesser extent by other European producers. There are quite

ambiguous effects of the western sanctions disabling importation of important goods for the Russian companies. The first group of goods consists of items where the share on Russian imports for 2012 was at a significant level and as consequence of the ban, Russian companies imported considerably lower amount of such goods. The second group comprises the largest group of the goods – where the share in 2012 imports was either low or desirable effect was replaced by import from other countries. Unaccountably, there is also a third group consisting of items where Russian companies paradoxically imported much higher amount of merchandise (HS 89052000 - Floating or submersible drilling or production platforms and HS 843149 - Parts of machinery of heading 8426, 8429, 8430, n.e.s.). The most frequent "lost trade" cases include HS 7304 - Tubes, pipes and hollow profiles, seamless, of iron or steel (excluding products of cast iron) and HS 8431 Parts suitable for use solely or principally with the machinery of heading 8425 to 8430, n. e. s. To identify a general effect of western sanctions on Russian imports, the final effect is surprising – total volume of the goods later affected by the ban was 70.1 bn. RUB, in 2012. Nevertheless, the total import volume for the same HS codes was 99.3 bn. RUB in 2016. Having applied exchange rate factor, in terms of USD, initial import from 2012 at the level of 2.26 bn. USD decreased more dramatically up to 1.49 bn. USD. This drop represented 34.1% decline. The results reveal quite low effectivity of the sanctions as leverage against Russian approach related to Ukrainian conflict. This kind of bans does not create such a difficult barrier for the Russian companies as intended. One possible explanation is declaration of similar purpose of use and declaration within an export permission related to dual use. The second effect is import reorientation from previous suppliers from western countries on new suppliers from China, the Republic of Korea and other emerging Asian economies.

3.2.3 Analysis of the foreign trade - retaliatory sanctions from Russia

In response to the EU´s economic sanctions analysed above, on August 6th , 2014 Russia imposed a one-year ban on import of a wide range of agricultural products and food sector products produced in western countries, including fruit, vegetables, flowers, fish, meat and cheese. This list comprised higher amount of merchandise trade, not only in terms of items. Analysing total Russian import of impacted goods, in terms of 2012 share, Russian ban related to 7.59% of the imported merchandise in the previous year. This character of ban was considerably more protective and more vulnerable measure especially for the European exporters than the sanctions imposed by western economies. If we compare a volume in the table below, in terms of USD, there is a huge drop in the merchandise imports of Russia in case of retaliatory sanctioned items. Generally, Russian imports between 2012 and 2016 fell by 42.4%. In case of counter-sanctioned items, Russian imports drop by 52.6% (from initial volume 21.9 bn. USD up to 11.5 bn. USD) what proves a harmful effect of the bans for the foreign companies exporting to Russia. At the HS4 code level, the most serious declines were recorded for the following merchandise groups ranked according to HS4 code:

Table 2: Changes in foreign trade by HS4 code

HS CODE	Product label	USD Import in 2012	USD Import in 2016	Share on imp. 2012	Change in %	Change in mil. USD
'TOTAL	All products	316 192 918	182 257 214		-42,40%	-133 936
'0203	Meat of swine, fresh, …	2 461 479	628 089	0,34%	-74,50%	-1 833
'0202	Meat of bovine animals, frozen	2 645 002	830 977	0,46%	-68,60%	-1 814
'0406	Cheese and curd	1 818 176	732 525	0,40%	-59,70%	-1 086

'0808	Apples, pears and quinces, fresh	1 241 935	524 446	0,29%	-57,80%	-717
'0302	Fish, fresh or chilled	887 327	182 991	0,10%	-79,40%	-704
'0207	Meat and edible offal of fowls …	845 816	316 216	0,17%	-62,60%	-530
'0702	Tomatoes, fresh or chilled	886 816	490 582	0,27%	-44,70%	-396
'0809	Apricots, cherries, peaches …	660 970	276 947	0,15%	-58,10%	-384
'0806	Grapes, fresh or dried	607 390	233 254	0,13%	-61,60%	-374
'2106	Food preparations, n.e.s.	840 690	484 622	0,27%	-42,40%	-356

Source: authors´ calculation based on ITC data

The goods analysed above are very difficult to substitute by Russian producers and therefore have primarily negative effect on Russian consumers as well as traders. Within last 2 years and especially during 2017, several media including renowned mainstream agencies brought information that the major effects of countersanctions are:

A. Reorientation of Russian importers of sanctioned goods onto new trade partners
B. Higher competitiveness of Russian companies supplying sanctioned food sector products within Russian economy

Firstly, media and some authors overemphasize the possibility of merchandise import reorientation. According to the analysis above, there are some goods which could not be fully replaced without considerably higher import prices. A typical example is Russian import of bananas (HS 0803), which was banned and covered almost 0.6% of total imports. For the explanation of possible reorientation, four major sanctioned products with considerable share on imports were selected: HS 0202, HS 0303, HS 0406, HS 0808. The share of analysed goods in each case is between 0.53% and 0.78% on total Russian imports. In case of HS 0202, total import in 2012 was peaking 2.65 bil. USD. The structure of import partners comprising almost 95% illustrates that especially in this category, Russian consumer simply purchased still less meat from abroad, since 2014. The share of Brazil on tremendously lower import increased from 41.6% up to 48.2%. Sanctioning countries covering more than 15% do not export and their part of Russian consumption simply stopped to be imported. In case of fish import, former key import partners like Norway, Iceland, the UK, the USA or Estonia disappeared and were substantially replaced by much higher imports from Chile, China (increase from 0.7% in 2012 up to 10.5 in 2016), Greenland or Argentina. In this case, banned imports were partially replaced by other countries, what seems to be a challenge for exporters from sanctioning countries even in case of cancelled bans. Probably the most significant change in importation vs. boosting domestic production as a way of import substitution can be observed in case of cheese and curd import. More than 80% of cheese and curd was imported from currently sanctioning countries (mainly the EU). Last year, most of the goods were imported from Belarus and new dominant suppliers (Uruguay, Argentina and Serbia), nevertheless only partially. Hence, not very competitive, new domestic production capacities as side-effect of the sanctions, have unfold. In case of the last group, the situation is a combination of the loss of trade and import reorientation. Comparing 2012 imports, less than half of the apples are being imported to Russia today. The structure of foreign suppliers has changed in favour of more than three times higher amount from Serbia and increased import from China and Belarus.

3.2.4 Impact on Russian economy - changes in structure and import substitution

Russian agriculture is experiencing a significant boom thanks to sanctions against the EU, the weakening of ruble and the unrealizable reorientation of imports in some commodities. In 2016, Russia for the first time gained more profit from the agricultural product sale than the

weapon sale. During the past 6 years the production of cereals has increased and in Russia became the world's largest wheat grower and exporter. Recently, the average grain exports amounted to 22.5 million tonnes per year. Russia has won an important contract to export 120,000 tons of wheat to Egypt and with the future export of wheat to China will further strengthen its developing foreign trade relations with the country in another area of the economy. As sanctions helped Russia to develop relations with Asia, the weakening of the Russian ruble helped farming since crops became more competitive on the world market. Russia's agricultural products have the prospect of becoming the second most important export component of the country.

4. Conclusion

Based upon the available facts (which are still not sufficient enough to give a clear answers to given hypothesis), there are a few tendencies we can observe already at this point. Our study confronts the study results of the Bank of Finland (2014), research of Berlin Economics (2017) and WIFO (2016). The added value of the study brings a new assessment of the sanctions considering effects on Russian economy. **Economically**, the impact on Russian economy (at least in a short term) is not visible so intensively. The main findings of our research give a proof that the changes in import were not so significant and almost none changes in foreign trade outside commodity groups expressed in Russian rubles. Moreover, reorientation of the exports, changes in the codes as well as re-exporting from non-sanctioning countries were proved. An effect which was probably underrated is a transformation of domestic agro-companies which was triggered after the sanctions went into force. **Politically**, the USA and the EU have exhausted their economic sanctions potential to threat Russia without any significant effect. On the other hand, the sanctions have pushed Russia into closer cooperation within the Asian economic space, which is not dominated by the USA in such extent as the EU. This move can be, from the long term political perspective very harmful for EU members, especially for those from CEE region. The open questions related to sanctions; mainly if Russia will be able to use the sanctions and bans to further develop local SMEs especially in the agriculture, food production and consumer goods production in order to change the structure of domestic supply substitute import. We consider this effect to be a major threat of further foreign trade sanctioning with economic losses on both sides. The second unanswered issue of the topic is how successful will the schemes of the anti Anglo-Saxon economy be as for example BRICS. It is not clear if the new OBOR project will be a successful story or just a trial which will fail at the end. One of the key drivers which remains unclear is the energy market development and future prices which will probably determine Russian economic development much more than foreign trade bans. Provided data fully support the idea that if EU continues to insist the sanctions need more time to work, the costs will add up, but principally not for Russia.

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COMPARISON AND CONTRAST OF CLASSICAL AND MODERN MANAGEMENT APPROACHES IN GLOBAL CONDITIONS

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Abstract. The concept and approach to the management has been developed over time to the modern management that has been created primarily to meet the requirements of enterprises in a global environment. In the first part, we will focus on defining and comparing classic and modern approaches. The traditional theory of the organization and management is based on contributions from numerous sources including scientific management, administrative management, bureaucratic modelling, microeconomics and public administration. After World War II, the interdisciplinary nature of management theory expanded to create a modern management approach. There was applied knowledge such as cybernetics, general theory of systems, operational analysis, and next computers and in the management, exact methods have been introduced. Representatives of this theory are approaching to management through the decision-making process and claim that decision-making is the core of managing. The aim is to compare and detect the contrast between the selected approaches and to define their similarities and differences. In the second part, we will indicate through the survey which of the approaches can motivate employees to provide better job performance. Except this, there are the results of the questionnaire survey, the overall comparison and the evaluation is provided in the third part. The final part informs about which aspects of the classical and modern management approach can affect the performance of employees most, what could be beneficial for companies.

Keywords: modern management approach, classical management approach, performance

JEL Classification: B12, L25, M12

1. Introduction

The development of management theory has intensified since the World War II. Growth of the interest in management has been the result to aware the importance of rational management for the corporate efficiency as well as the rise in rivalry in the struggle for markets, power and progress, i.e. the growth of global competition not only in the economy but in different spheres of human activity.

Current management is a set of diverse theories and experiences, where some of them are focusing on different areas of management that they are thoroughly exploring and developing, and others are talking about different opinions within the same field of management. As a result, some management knowledge is complementary to each other, or overlap, and some

have the opposite orientation. Therefore, not only the classification of management approaches but also their content focus is discussed. Organisations increasingly aim to build open structures and systems (Pachura, 2017; Ponisciakova, 2016).

With its centuries-long history, management has developed and is being tested by the real life of the market economy. Many useful experiences have been generalized, many claims needed to be modified, but some conclusions had been abandoned. Management is evolving under the pressure of theory and practice, and its ideas often return to the past. Older ideas, principles, as if they were returning to a new quality. These are some of the reasons why it is necessary to understand the history of management (Skokan, 2002). Hitt et al. (1979) classify managerial theories into three broad groups: 1) Classical Management Theory 2) Theory of Neoclassical Management 3) Modern Management Theory.

2. Contrast between classical and modern approach of economics

The founders and representatives of classical management were: F. W. Taylor, H. L. Gantt, H. Fayol and M. Weber, who, in their theoretical work and the practical work of their organizations, used inventive ideas that were extremely important in terms of management needs. ***Frederick W. Taylor*** was focused on the issue of increasing production efficiency by increasing staff wages because of the increase in productivity of their work. Productivity has also been tried to increase productivity by applying scientific management methods (Taylor, 1911). ***Henry L. Gantt*** developed graphical methods for the planning needs and better managerial control capabilities, enriched by identifying critical control points that resulted in known Gantt charts. He pointed to the necessity of educating managers and employees. ***Henri Fayol*** made a classification of the functions (activities) of industrial organizations for production, commercial, financial, protective, accounting and management functions. ***Max Weber*** was known for his classical theory of bureaucracy. It was based on the recognition that hierarchy, authority, and administration are the basis of all social organizations (Weber, 1964).

Modern management theory points to the complexity of the organization as well as to individuals and the diversity of their needs, motives, stimuli and potentials. As a result, single use status or universal management principles are impractical. Sophisticated management strategies are needed to resolve problems with people and organization issues (Janzen, 2016). Contrary to the rational economic human of classical theory and the view of the social person of neoclassical theory, the complex view of the employee is the object of modern management theory. The comprehensive view of the employee states that people are sophisticated and different. They have a lot of motifs, they learn new themes through their experiences and the themes vary from organization to organization (Nica, 2016; Dengov & Gregova, 2015). Complex interactions relate to employee and organization (Greblikaite et al., 2016). There is no unified management strategy that would always work for all people. The development of companies is linked to the development of human resources, so at the first place of company's priorities should be the interest to develop the potential of human resources (Durana & Chlebikova, 2016). Managers can use different strategies at different times and for different people and analytical tools can be useful in applying management strategies. In the "new" or "modern" management theory, the following approaches to dilution are important, which are its main directions: making decision, math, system.

The most important author in the decision-making approach is the Nobel Prize winner for economics ***Herbert A. Simon***. Simon emphasized the manager's responsibility for decision-

making efficiency. He argued that the great part of the decision-making activity for which he is responsible is not only his personal activity, but the activity of his subordinates too. A man plays a significant role in his theory. An important finding is that the future of the management discipline may largely depend on the rise of new forms of management drawing on distributed intelligence and circularity of power and authority (Romme, 2017).

In mathematical models, the economic indicators are expressed through variables, constants, and parameters. The interdependencies between these variables are defined in the form of equations, non-equals and their systems. Goals are usually expressed by features. P. A. Samuelson has become the first American awarded by the Nobel Prize for economics because of his contribution to the theoretical and methodological level of economic theory.

The system approach should serve as a framework for integrating different knowledge about the management. System approach is the opposite of the mechanical view of the world, based on the simplified ideas that we can understand any object by reducing it to its basic elements and their properties, and then we will examine them. The essence of system approach is that it attempts to theoretically explain and justify the movement of real objects by using systems whose integrity determines a set of mutually interconnected elements. One of the founders of the general theory of systems was the Austrian biologist, author of the general theory of life, ***Ludvig von Bertalanffzy***. Other scientist who has made a significant contribution to the emergence and development of a system approach to management was founder of cybernetics, ***Norbert Wiener***.

Table 1: Two ideal types of organisations and organisational management

	Classical approach	Modern approach
Management perspective	From the demanding outside	From the positive core
Performance horizon	Short term	Long term
Rewards and sanctions	Extrinsic	Intrinsic
Coordination and control	Explicit	Implicit
Attention Sphere	Problem solving	Opportunity recognition
Managerial Qualities	Push management	Pull management
Core resources	Tangible and intangible assets	Social and psychological capital

Source: Alphen, 2010

Table 1 shows the differences between the elements of modern and classical management. Globalization and economic development have caused changes that affect many areas. One of them is a job performance.

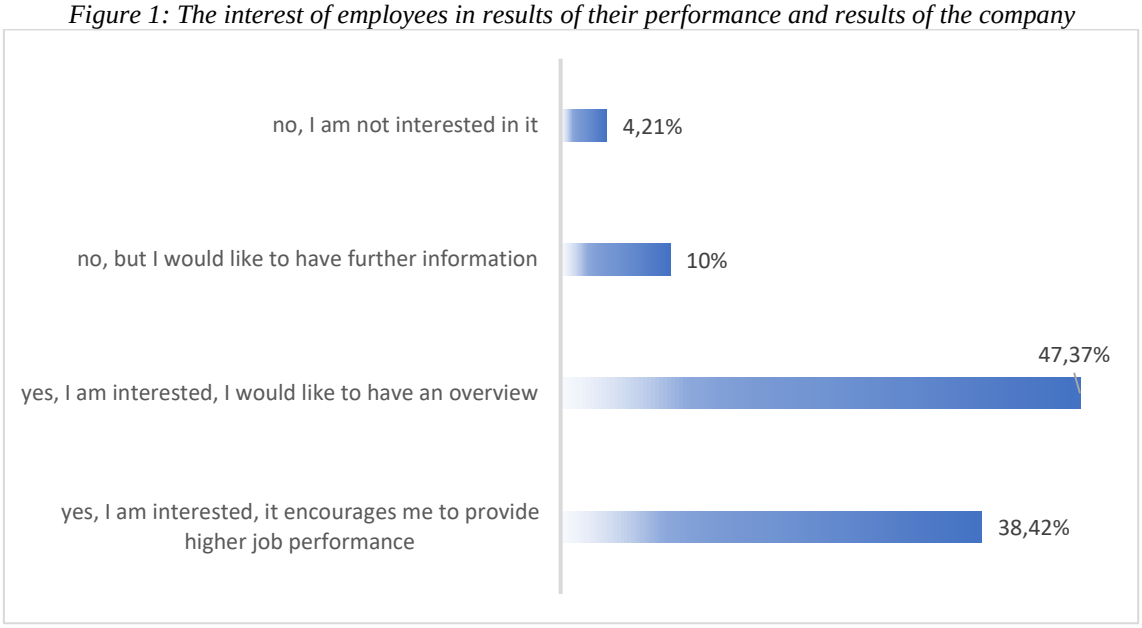
Verboncu and Mihai (2016) were describing methodology-based approach to management, which focuses on using modern management tools and methodologies.

3. Research focused on aspects of classical and modern approaches as a tool for increasing employee´s motivation to provide better performance

In the survey, data was collected through a questionnaire, which was then processed and finalized. Questionnaire survey was attended by 190 respondents. Representation of women was accounted for 52.11% and men 47.89%. The subject of the study was three basic questions to find out which aspects of selected approaches would stimulate the performance of employees.

The first question (Figure 1) relates to the employee's overview of the company's results and results. The specific question is: Do you have a good overview of the results of your work and company where you work?

Figure 1: The interest of employees in results of their performance and results of the company



Source: Own processing according to research

The results were surprising, because even 47.37% of respondents are interested in their results and company results. Even some of the respondents provided information may affect performance. Specifically, 38.42% are interested in the results, what encourage them to provide better job performance.

The second question (Figure 2) was focused on employee ideas and overall business co-operation. Question: Do you have the opportunity to offer your innovative ideas to the managers?

Figure 2: Possibility to come up with innovative ideas

Source: Own processing according to research

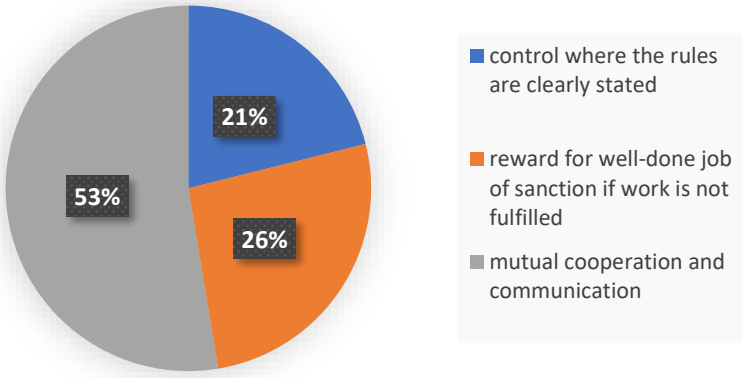
Almost 85% of the respondents are willing to have this possibility, but there are some problems. One group does not have the opportunity to express their opinions and to present their management ideas. Others think that if they present their ideas to improve production or service, their managers will not listen and will not consider their idea as an important one, and

ultimately their effort is unnecessary. Nearly 26% of respondents said that this possibility would motivate them to better job performance.

The third most recent question was: What type of control and coordination would have a positive impact on your work performance?

By supporting for proposals on the competence management improvement in modern corporations was focused the author Kashirin et. al. (2016).

Figure 3: Preference between classical and modern aspects of management within control and coordination



Source: Own processing according to research

Most respondents surveyed prefer co-operation in the context of control and coordination, which would have a positive impact on their work performance (Figure 3). However, some respondents did not oppose the possibility of clearly defined rules and a possible reward for a well-done job or a penalty if the work was not completed. Coopetition strategy and its efficiency was research issue of Shvindina (2017).

4. Conclusion

More and more enterprises operating on domestic and foreign markets in the present era of globalization approaches the transition from traditional management to process management (Kovacikova, et. al., 2016). Nowadays, a well-performing enterprise can be considered the one that is able to use many opportunities, to adapt to continual changes in the environment, to achieve better performance (Rajnoha, Lesnikova, 2016). According to provided research through the questionnaire, we found out that in the first question modern approach of management is preferred or would be preferred in case that management allows to express opinions of their employees. Employees would be even more motivated in case they would have this information.

Coming up with some innovative ideas seems to be interesting and motivating for 25,79% employees what leads to the higher performance. In this case, modern approach is dominating, but on the other hand, reality is different. In some organisations, employees are able to come up with new ideas, but they explained that they just do not have these ideas, so they cannot be added value for company in this way. Oher group of respondents 26,84% cannot participate by offering new possibilities which could support efficiency in the company, even though they want. We can claim, that in some organisation there is still implemented classical approach. Global environment developed conditions and companies should be inspired by modern approach as well. Globalization has reached a stage of development where the fragmentation of production and the international dispersion of

economic activities have reached unimaginable shares in the not too distant past (Postelnicu, et. al., 2015). Employees should have possibility to express opinions.

The third question is almost equal for modern and classical management approach. Modern approach in the way of controlling and coordinating gained 53% and classical 47%. The performance would be affected positively by communication and closer cooperation between management and workers.

To define company environment is not easy in the process of continuous expanding markets, globalisation, or new technologies, company environment is developing dynamically (Buno, 2015). The environment and conditions are still changing, and globalisation is one of the reason why the change is important. The aim of this research was to find out which aspects of classical and modern approach is stimulating employee performance. Modern management approach is more dominating, but not implemented in all organisations yet. According to research many respondents claimed that they cannot express their innovative ideas, or managers are not stressed on these ideas at all. Companies should adapt to the changing conditions to reach better results according to better performance. According to Apsalyamova (2016) only the innovation scenario will allow to provide progressive development on the basis of principles of stable management. Because innovation is a good way for the companies´survival (Sipos et al., 2014).

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MEASURING GLOBALIZATION. ADVANTAGES AND DISADVANTAGES OF MEASURING

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Abstract. The paper addresses the issue of measuring globalization. First, there are given several definitions of globalization, and then its development and essence are presented concisely. Next, the most important measures of globalization (A.T. Kearney and "Foreign Policy" Index, The Center for Globalization and Regionalization – CSR Index, KOF Index of Globalization, Maastricht Globalization Index – MGI, New Globalization Index – NGI) are briefly discussed. The ranking of the top 20 countries is then presented according to two indices: KOF and MGI. Attention is drawn to the fact that, depending on the elements involved and the weightings assigned to them, the position of the states in these rankings varies.The main purpose of the paper is the measurement of globalization and presentation of the advantages and disadvantages of this measurement. The next part of the paper focuses on this issue, presenting arguments for measuring this process and arguments against measurement. The conclusion states that, given the various specific reasons, measuring globalization is necessary. It is essential to create teams, composed of specialists of different fields, who will improve the measures. It is also important to combine quantitative and qualitative research on globalization in order to be able to develop a set of complementary measures that will reflect the nature of globalization in the most comprehensive manner.

Keywords: globalization, the measurement of globalization, advantages and disadvantages of measuring

JEL Classification: F60, F61, F62, F69

1. Introduction

Globalization is a phenomenon that accompanies the process of internationalization and integration as a consequence of the changes taking place in the world economy. This process has been the subject of extensive research since around the 1980s, although many authors say that it existed much earlier; some connect the beginnings of globalization with the industrial revolution of the turn of the eighteenth and nineteenth centuries, others with great geographic discoveries, but there are also those who trace the process back to as early as antiquity (Scholte, 2005; Bentley, 2004). The literature abounds with publications on the essence of globalization, the origins of it, the factors influencing the process, the positive and negative effects of its existence (including ecological) and the reactions of societies (Stiglitz, 2006; Scholte, 2005). T. Conley (2002) believes that a significant role in the advancement of globalization is played by a state policy that can enhance both the positive and the negative effects of this process. Recently, more and more indices are being created to measure globalization.

Globalization is most often measured at the macroeconomic level, but one can also come across the meso-scale measurements and even micro (Jørgensen et al., 2012). The purpose of measuring globalization is to demonstrate the degree of globalization in individual countries and to capture this process over time. Hence the main indices of globalization are presented, paying attention to their construction and differences. The advantages and disadvantages of measuring globalization are demonstrated, pointing to the need to improve indicators. It was considered that the measurement of globalization, in spite of shortcomings, should be continued.

2. Essence of globalization

Due to the multidimensional and multilayered nature, it is difficult to capture all elements of globalization in one definition. Therefore, there are many of them in the literature, and each tries to draw attention to another aspect of this process. The paper by Samimi, Lim and Buang (2011) presents a chart showing the different effects of globalization, both positive and negative.

Globalization is a process that deepens global connections in all aspects of political, economic, social and cultural life (Dreher & Gaston, 2008; Waters, 1994). Economic globalization can also be seen as a process of progressively integrating national markets into a single global market. Finally, globalization can be approached as a worldwide business, paying attention to the strategy and the way it is managed. Globalization research is conducted by specialists from different disciplines, which can contribute to the formation of new disciplines. Due to the nature of globalization, the literature is very extensive and concerns not only the essence of globalization, but also its origins, positive and negative effects (Stiglitz, 2006).

According to the OECD (2006), globalization is the progressive internationalization of the financial markets and of the market of goods and services. It primarily refers to the dynamic and multidimensional process of economic integration in which national resources become increasingly mobile at an international level and national economies are increasingly interdependent.

Opponents of globalization accuse it of a number of adverse effects. However, recent research has shown that globalization fosters economic growth, promoting gender equality and respect for human rights. It does not restrict the activities of the welfare state. There is no significant impact on the interactions taking place in labor market and does not affect market deregulation. On the other hand, it contributes to the increase in income inequalities within the country as well as between countries (Hurell & Woods, 1995), (Potrafke, 2015), (Spagnolo, 2017). In the short term, it reduces the pollution of water and air, but the long-term impact of globalization on the environment is unfavorable. Ecological footprints are now playing an increasingly important role in globalization indicators and should be carefully investigated (Figge at al., 2017). In addition, as demonstrated by Dreher, Gaston and Martens (2008), globalization undermines the strength of trade unions and strengthens the role of transnational corporations.

The Swiss Institute KOF[16](2016), which measures globalization as well as A. Dreher (2006), defines it as a process of networking between entities on different continents leading

[16] KOF is an acronym for Konjunkturforschungsstelle.

to different flows, including people, information and ideas, capital and goods. This results in erosion of national borders, bringing together individual economies, cultures, technologies and in relationships of mutual interdependence. Measurement of globalization is not straightforward, as evidenced by a large number of measures, each of which contains certain shortcomings.

3. Measures of globalization

When it comes to measuring globalization, all its features have to be taken into account, namely the rate of changes occurring, mainly under the influence of scientific and technical progress, large geographical and substantive scope, and universality. For this reason, one cannot measure globalization with one measure. Therefore, many of them are used, consisting of a number of component variables. Depending on the purposes and fields of globalization, the availability of data, and the specifics of the countries participating in the study there are used different indices.

According to the recommendations of the OECD (2006), three types of globalization indicators are identified: reference, complementary and experimental. The first, most important, standardizes the most fundamental measures of economic globalization, which makes it possible to reliably compare elements of globalization over time in different countries. They are presented in percentages or per capita.

One of the first synthetic measures of globalization was the globalization index developed by A.T. Kearney firm and published in "Foreign Policy" in 2001 (Measuring Globalization, 2001; Caselli, 2008). Since 2007 it has ceased to exist. It covered 12 indicators in four groups: 1. economic integration (foreign trade and foreign direct investment – FDI), 2. personal contacts (foreign travel, international telephone calls and international personal transfers), 3. technological communication possibilities (number of internet users, number of websites operating in a given country, number of secure servers), 4. political involvement (participation of the state in the number of international organizations, number of UN peacekeeping missions in which the country is participating, number of international treaties ratified and sum of government transfers from international organizations and other countries) (Measuring Globalization, 2001; Czech, 2011; Samimi at al., 2011). These indicators were standardized and 10 of them were given in absolute terms, thus the size of the country had no influence on the ranking. Moreover, the index authors gave more weight to some indicators (e.g. foreign trade – two, FDI – three, and the other smaller one – in the third group each received 1/3, and in the fourth ¼ of the weight). In the first year of the study, only 34 countries were included, then their number increased to 60, which was not a satisfactory result (Czech, 2011). In addition, as B. Lockwood (2004) stated, the position of the state in this ranking largely depended on its geographic importance.

Another index (CSGR), worth mentioning, is the Globalization Index compiled by British researchers from The Centre for the Study of Globalization at the University of Warwick in 2002. It was published for three years and accounted for 16 indicators, including, for the first time, cultural indicators of globalization (Lockwood & Redoano, 2005; Caselli, 2008). At the same time, A. Dreher developed the KOF Index of Globalization, updated in 2008 and still in use (KOF, 2016; Samimi at al., 2011). It examines the level of economic, social and political globalization. Therefore, in addition to the overall globalization index, there are three sub-indices calculated on the basis of several indicators that have been assigned a specific weight. Economic globalization is 36%, one half of which is attributable to current flows (trade, FDI,

indirect investment, foreign income payments as a percentage of GDP) and the other to restrictions (number of hidden import barriers, amount of customs rates and taxes on trade foreign as a percentage of current receipts and restrictions on the movement of capital). The share of social globalization is 37% and it is calculated on the basis of personal contacts (international telephone calls, financial transfers, foreign tourism, participation of foreigners in the whole population, number of sent and received letters from abroad), information flow (number of internet and television users per 1000 people, newspaper sales as a percentage of GDP) and cultural proximity (number of McDonald's restaurants, IKEA stores, book sales). These figures are calculated either as a percentage of GDP or per capita. Political globalization is 27% and is calculated on the basis of the number of embassies in a given country, participation in international organizations, participation in UN peacekeeping missions and international treaties (KOF, 2016; Czech, 2011).

A team of German sociologists has proposed multidimensional measurement of globalization that takes into account economic, technological, cultural and political changes. Based on the existing measures, the Global Index has been developed, taking greater account of sociological factors (Raab et al., 2008).

In 2008, the Maastricht Globalization Index (MGI) was launched, consisting of five domains: political, economic, socio-cultural, technological and environmental. The first two domains include three indicators, the next two contain two, and the last one just one – the ecological aspect of trading (Figge & Martens, 2014; Samimi at al., 2011).

In 2010, P. Vujakovic developed the New Globalization Index (NGI), consisting of three groups of indicators: economic (9 indicators), political (4 indicators) and social (8 indicators). Most of them are the same as previously stated. The new ones refer to non-resident applications for trademark registration and patents (Group 1), the number of ratified environmental agreements (group two), the student mobility index (group 3). Export and import of goods is weighted and takes into account the distance between countries. The weightings of the different indicators are also divided into three dimensions: finance – 37%, trade and politics –32%, social – 31% (Vujakovic, 2010). The above presented indices of globalization do not exhaust their lists. In recent years, new ones have been developed by P. Martens and other authors (Figge & Martens, 2014; Samimi et al., 2011).

Different indicators and their respective weights in different indices influence the different position of a given country in the measurement of globalization. In some cases the differences are quite significant. For example, the following 20 countries are ranked according to the two current indices: KOF and MGI. Due to the lack of newer data for MGI, the comparison is for 2012. MGI strongly emphasizes the environmental aspect while KOF does not take it into consideration. Exact differences between the two indices and the update of the KOF in 2009 were presented by Dreher at al. (2010).

Table 1: Indices of globalization - KOF and MGI (2012)

Ord.	KOF	Index	Ord.	MGI	Index
1.	Belgium	92.76	1.	Belgium	81.42
2.	Ireland	91.95	2.	Netherlands	78.12
3.	Netherlands	90.94	3.	Switzerland	74.69
4.	Austria	90.55	4.	Great Britain	73.21
5.	Singapore	89.18	5.	Austria	72.81
6.	Sweden	88.23	6.	Germany	72.22
7.	Denmark	88,10	7.	Ireland	70.94

8.	Hungary	87.38	8.	Sweden	70.74
9.	Portugal	86.73	9.	Malaysia	70.69
10.	Switzerland	86.64	10.	France	69.91
11.	Cyprus	86.59	11.	Norway	69.71
12.	Luxembourg	86.02	12.	Jordan	69.57
13.	Czech Republic	85.76	13.	Denmark	68.73
14.	Great Britain	85.54	14.	Israel	68.29
15.	Canada	85.53	15.	Spain	68.23
16.	Spain	84.36	16.	Italy	68.04
17.	Finland	84.34	17.	Saudi Arabia	67.95
18.	France	84.12	18.	Portugal	67.43
19.	Slovakia	83.83	19.	Czech Republic	66.76
20.	Norway	83.19	20.	Slovenia	66.74

Source: Figge & Martens, (2014); KOF, (2016).

Comparing the two rankings, there are visible differences, but not essential. In both rankings the leader is Belgium, the second or third place occupies the Netherlands. 13 states are repeated out of 20, but in different positions. Their number would have been higher if the countries not included in MGI ranking (Cyprus, Luxembourg and Singapore) had been eliminated from the KOF ranking. Five of the KOF top twenty are ranked among the top thirty in the MGI ranking (Hungary – 22, Canada – 24, Slovakia – 26, Finland –27). In 2012, Poland according to KOF was at 25th place and according to MGI at 28th.

Globalization indices are used for a variety of purposes: in business analysis, mass media, political environments, to illustrate certain economic or cultural processes, etc. (Dreher at al., 2010). Many authors, pointing out the advantages and disadvantages of globalization indices, believe that KOF is the best indicator (Samimi at al., 2011; Dreher at al., 2010).

4. Advantages of measuring globalization

As mentioned earlier, the literature describing the process of globalization in various areas of life is very rich. These are usually theoretical reflections of specialists from various social sciences on this process. Economists most often provide input into globalization and are voiced by sociologists, political scientists, and frequently by politicians. The measurement of globalization gives them specific values that are hard to argue with. Of course, the relevance of the selection of such or other indicators can be undermined, but the fact itself of measuring the phenomenon is already a strong argument in the discussion. Globalization indices can therefore provide a valuable complement to these considerations and help better understand the ever-changing transformations.

Equally important, the ability to measure globalization can contribute to greater integration between quantitative and qualitative research. Authors of both types of research should work together on this phenomenon and, as A. Dreher, N. Gaston, P. Martens and L.van Box (2010) state, a new framework for this collaboration is needed.

An indicative approach to the globalization process can also contribute to the integration of many sciences, mainly social, dealing with this phenomenon. As the measurement requires the broader view, there need to be taken into account variety of aspects: economic, and sociological, cultural, demographic, political, environmental, etc. And as L. Figge and P. Martens (2014) rightly pointed out “Composite indices are a powerful tool to capture and measure complex concepts that allow for monitoring complex systems over time and yield

relative rankings and comparisons." Moreover, according to the OECD, "globalization is a challenge and demands new indicators with statistical indicators and indicators designed to help public authorities and businesses assess performance and determine the right strategy" (OECD, 2006). It is important not only to improve the measurement tools but also to harmonize them in all countries in order to be able to make reliable analyzes and draw constructive conclusions to formulate recommendations for a broadly defined strategy.

5. Disadvantages of measuring globalization

M. Caselli (2008) points out two major drawbacks. Firstly, the weakness of the database on which the measurement is made (incompleteness, untimeliness, and inadequateness of information for the calculation of indicators), secondly, the so-called methodological nationalism, namely that transnational phenomena are attempted to be measured at national level. The lack of a single definition of globalization also makes it difficult to measure it. In addition, globalization can be measured at different angles, taking into account various elements (Samimi at al., 2012). The arguments against the measurement of globalization are also the various positions of individual countries in different rankings (see Table 1). Significant differences can result from omitting or including one domain (area) or one of the elements of the indicator. Even taking into account the same domains will not solve the problem, as they may have different indicators. Moreover, even the same indicators can be assigned different weights, which will also change the final result (Samimi at al., 2012). Thus there are problems with measuring, weighting, and standardizing the principles of indicator construction, which cause that in various measures countries occupy different places in rankings. It would be appropriate, according to B. Lockwood's suggestion (2004), to apply the same technique of their construction.

Using synthetic measures, a number of variables need to be included, which have to be acquired. This makes it especially difficult for developing countries which do not calculate all the data they need and therefore can not be considered in the rankings (Samimi at al., 2012).

The choice of indicators is subjective. While in the case of economic globalization the differences are small, in terms of social, cultural or political globalization, the differences may be considerable. We are not always sure that the indicators used actually reflect the level of globalization, hence some rankings are contradictory to the intuitive feeling (Czech, 2011).

There are also suspicions about tampering with indicators. Depending on the positive or negative attitude towards globalization, the right place in the ranking will have a political impact. If we assess globalization positively, the high position in the ranking will increase the prestige of the country and increase the attractiveness of investment (Martens et al., 2014).

The method of data collection may also raise doubts. Statistical data is usually derived from a variety of sources, whose reputation is not always high, and it has a bearing on the reliability of the data. As a rule, the data is also processed. In addition, one should take into account that some of the indicators are relatively quickly outdated because the pace of change is so large that they cannot be considered universal. This is particularly true of social globalization (Czech, 2011).

According to the analysis, the measurement of globalization can pose many doubts as to the technique of data acquisition and development as well as the reliability of its value. Controversy can also arouse the interpretation itself. Depending on the subjective relation to the process itself, the evaluation of the indicators will be different.

6. Conclusion

Measuring globalization is a difficult undertaking. Too much data makes its collection and measurement difficult; too little, on the other hand, causes that we will not embrace the whole process. So, is it worth it to measure globalization? Given the new wave of globalization and the fact that it affects more and more developing countries, the measurement is necessary. Such are also prospects for the future. The literature shows that many scientists are working on improving indicators, joining teams that include economists, sociologists, political scientists, lawyers, historians and others. It is also necessary to combine quantitative and qualitative research in this area. It might be a good idea to set up a global discussion forum to work out a similar position on globalization and its measurement, so as to develop an optimal, globally reflective measure that will replace the current ones. It should be precise, yet simple and easy to interpret (Dreher, at al., 2010). On the other hand, as it is stated by Martens: "workable forward strategy should not seek to identify the single best composite globalization index, but rather should work in an interdisciplinary mode towards a set of complementary globalization indices" (Martens at al., 2014).

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GLOBALISATION AND ITS IMPACT ON USE OF MODERN MARKETING TOOLS IN ECO-INNOVATION PROCESSES

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Abstract. In today´s globalized economy innovations are essential to company´s development as well as that of the whole society. By implementing innovations businesses are able to reduce a negative environmental impact of their production processes. There has been a considerable demand for ecological technologies, products and services due to growing ecological issues and limited natural resources. A successful eco-innovation has to use proper eco-innovation processes and ensure continuous implementation of specific measures in order to reach a particular business goal – product placement in the final phase of commercialisation. No eco-innovation process can be implemented without use of effective marketing tools. A current eco-innovation processes has to be accompanied by an appropriate marketing strategy in every of its phases in order to ensure successful diffusion of an eco-innovation. Globalisation, social changes, development of new technologies and market saturation are the factors to pave the way for development of the newest marketing tools. The paper deals with the issue of globalisation and its impact on use of modern marketing tools in eco-innovation processes. It consists of two parts – the first one focuses on eco-innovations as well as specificities of marketing communication from the point of view of eco-innovation processes. The second part presents the outcomes of the quantitative research we carried out in order to assess the current state of use of modern marketing approaches and eco-innovation processes. The paper is a partial output of research project VEGA 1/0640/15 named: "Phygital Concept and Its Use in Sustainable Integrated Environmental Management of Businesses".

Keywords: eco-innovation, eco-innovation processes, marketing communication

JEL Classification: M14, M31, O31, Q50

1. Introduction

In today´s globalised economy innovations are essential to company´s development as well as that of the whole society. Innovation is a good way for the companies´ survival (Sipos et al., 2014). Mainly, the field of innovations which are bound to reduce negative environmental impacts of production (Bednárik, 2014). Businesses are innovation production technologies with the purpose of reducing their environmental impacts. More and more products are being manufactured from ecological materials so as their production could be the least harmful to the environment (Zaušková et al., 2013). The measures in the field of eco-innovation

represent a key opportunity how to face challenges of sustainable development in the world as well as contribute to placement of ecological products and services on the global market (Jánošová, 2015). People are becoming more aware of environmental protection and therefore a new long-term trend of eco-innovations is being created in the commercial sphere of business respecting or even improving the environment (Miklenčičová, 2016). There is room for further improvements in the field of production, marketing or marketing communication. Business should gain trust or enhance customers' ecological awareness when it comes to changing their attitudes towards themselves or their lives (Zaušková et al., 2016). Due to a considerable growth in globalisation, development of information and communication technologies, changes to customers' requirements and many other factors, new ways of communication have emerged. Thanks to accelerated globalisation the internet has become an unseparable part of our everyday life. It not only simplifies our communication, but it also represents an effective way of saving time and financial resources. The phenomenon of digital marketing has dominated the advertising business in the last few years. Information and communication technologies have become an unimaginable part of process of creation of the global information society (Grib, 2015). Tools and technics of digital marketing are a perfect opportunity for spreading ecological messages to the wide public and simultaneously, for showing how digital technologies can make our lives easier or bring new experiences.

2. Modern communication tools for promotion of eco-innovation processes

A successful eco-innovation requires use of an appropriate eco-innovation process and progressive implementation of specific steps meeting the company´s objectives and promoting a positive change towards commercial placement of a product on the market (Jurišová, 2016). In every phase, a continuous eco-innovation process shall be supported by an appropriate marketing strategy in order to ensure successful implementation of its final phase – diffusion. Traditional marketing communication tools shall be implemented with new approaches and technics of digital marketing or any other marketing tools (Zaušková et al., 2015). Growing, globalisation, development of IT technologies and changes to customers´ requirements have brought about new ways of communication with a customer. Therefore it was necessary to find more modern communication tools which could provide competitive advantages to businesses (Mendelová & Zaušková, 2015). Companies are permanently looking for new ways of communication with their target audience and are trying to improve their relationship towards a customer. On the one hand, there is a wider choice of communication tools but on the other one, there are higher requirements for identification, differentiation and integration hereof (Šalgovičová, 2015). The world of digital media is rapidly developing. People are changing the way they obtain information as well as the form of communication with one another (Šalgovičová & Klinčeková, 2015).

The volume of goods, energy consumption and other materials businesses use for marketing and enormous representing not only economic but also ecological burden. Connection of offline and online forms of marketing communication (i.e. cross-line communication) can represent an environmentally friendly solution. It should be noted that cross-line communication tools are not completely new but an effective combination of existing tools (Zaušková et al., 2015).. There is a new trend of communication known as the Phygital concept. This technic interconnects production processes with new environmentally friendly technologies. The concept has emerged as a result of a considerable growth in marketing communication tools and saturation of the online environment. It uses modern technologies by combining the physical world with the digital one and thus provides the

public with a unique interactive experience (Zaušková & Grib, 2015). Businesses are becoming more aware of importance of online communication combined with innovative elements as a source of marketing promotion (Grib & Čapkovičová, 2016). In order to elaborate a viable and successful marketing strategy and allocate appropriate resources therefore, it is necessary to understand and evaluate effectiveness of their operability in new conditions of digital world (Zaušková et al., 2016).

3. Methods and outcomes

Small and medium-sized enterprises (SMEs) play a key role in the process of implementation of innovations in Slovakia. They are able to react flexibility to the market situation, they stimulate competitivity and employment and their existence is crucial for maintenance of existing working positions or creation of the new ones. They are essential to the European business environment as well. On the other hand, these businesses do not have enough financial resources for implementation of eco-innovations. We have selected this business segment due to its importance in eco-innovation processes as these companies have great potential for growth, development, international influence and flexible feedback. When assessing the current market conditions we have to understand that a customer´s final buying decision is influencing by various factors. We are convinced that the global economic downturn has caused customers to be more careful and considerate when entering into business relationships. Globalisation and permanent market changes have created a completely new market environment placing higher demands on innovative strategies. SMEs do not usually have sufficient finance, material and technical or personal capacities. These companies, however, represent a key element of innovation processes in Slovakia.

The first research described the current state of use of marketing communication in the field of creation, implementation and commercialisation of eco-innovations in the segment of SMEs. Overall we distributed 1,200 online questionnaires. We collected all the data hereon from the websites of the Statistical Office of the Slovak Republic. The summary off all the SMEs equals the size of the basic file. Consequently we defined the size of the selected file using statistical calculation scheme. The number we obtained was sufficient for execution of the research and drawing of the relevant outputs hereof. The second research focused on the building industry for various reasons. Based upon the study of the available secondary we had realized that the Slovak business industry was currently undergoing considerable expansion with great potential for implementation of eco-innovations.

Moreover, the European Parliament and the European Council have recently adopted an amendment to the Energy Efficiency Directive stimulating that all the buildings to be constructed after 2020 will have almost zero energy consumption. We assumed that the second research should focus on the current state of implementation of eco-innovations and their marketing communication in the building industry. We collected all the data hereon from the websites of the Statistical Office of the Slovak Republic. The size of the basic file was determined by the outputs of the first research which helped us define the percentage of businesses operating in the building industry. Consequently we determined the size of the selected file by a statistical relation for calculation. We used questionnaires as a primary source of data in the two types of research. When asking about the opinions, we were trying to avoid suggestive or time-consuming questions. The data were processed by accurate statistical methods to draw relevant conclusions and outputs therefrom.

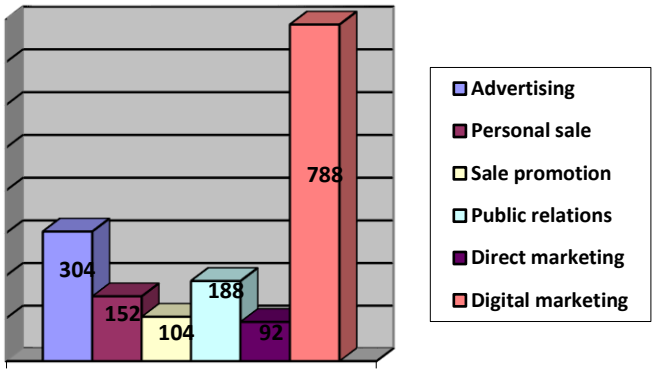
4. Use of marketing tools in eco-innovation processes of SMEs

The first quantitative research was mainly focused on evaluating and assessing SMEs. The research was based upon the first pioneering study which had provided us with preliminary results when it comes to implementation of eco-innovations in Slovakia. We aimed at emphasising why such an implementation is reasonable. In course of execution of the research we addressed the Ministry of Environment of the Slovak republic, the Ministry of Economy of the Slovak Republic, we consulted the web page of the Statistical Office of the Slovak Republic and we realized that there was no available database to define to what extent eco-innovations are being implemented in Slovakia. In the research we managed to describe implementation of eco-innovations in Slovak SMEs in the last three years´ period. In contrast to the pioneering study, which questioned on the percentage of businesses implementing eco-innovations. We were trying to find out which business environment is the most eco-innovation friendly. The majority of the questioned businesses (43 %) having implemented eco-innovations operate in the building industry. We may assume that the building and construction industry hide great potential as well as a need for change as most of the buildings in Slovakia have not been constructed in line with a sustainable development philosophy. Let´s mention high energy consumption and uneconomical construction systems. The current global trends as well as the EU policies and measures are promoting the idea of economies and sustainability. Consequently Slovak businesses are aware of these changes and trying to adapt their activities hereto.

Businesses understand the need for implementation of eco-innovations, they are trying to execute their activities in a more ecological way and promote environmental behaviour and environmental responsibility. On a theoretical level, there are various definitions of the term of an eco-innovations, which differ considerably in their wording despite being identical in their basis. 87 % of the questioned businesses knew the term of an eco-innovation we mentioned. The remaining 13 % did not know the term at all. However, these businesses were able to define the term on their own. We may state that eco-innovations have started to represent a global trend businesses are trying to understand and implement in general. Some companies were also able to mention the type of the eco-innovation they had implemented. The majority (35 %) used new environmentally friendly building materials while 15.67 % were introducing a new production process requiring fewer natural resources or using new environmentally friendly technologies.

Effective and practical use of innovations is not possible without sufficient marketing promotion. There is no doubt that innovation and marketing communications are two the most importance activities to be in conformity within a business. The majority of businesses we questioned also understood importance of the marketing communication tools. Up to 79 % of businesses are using marketing communication for promotion of the implemented eco-innovations. The remaining 21 %, however, do not consider marketing communication of eco-innovations as crucial. They argue that eco-innovations are being implemented only in the framework of internal company systems without a need to be widely promoted. Consequently, such businesses do not employ any qualified staff in charge. Marketing activities and appropriate marketing communication can result in a synergy of eco-innovations and thus target those customers who can accept eco-innovations as an ordinary product. The Figure 1 shows use of specific communication tools in promotion of the implemented eco-innovations.

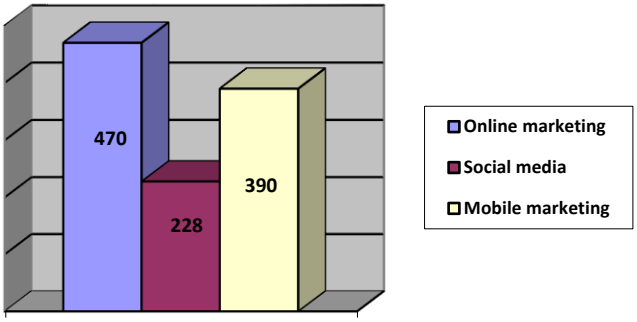
Figure 1: Tools of marketing communication used in promotion of eco-innovations



Source: own resourcing, 2017

The Figure 1 says that the majority of businesses use digital marketing for promotion of the implemented eco-innovations. Digital marketing provides the widest range of new approaches in marketing communication. The world of digital media is changing at an extremely high pace. Its newly-developed technologies are changing not only the way people are obtaining information, but also the way they are using them for further communication. The Figure 2 describes the technics of digital marketing the businesses are using for promotion of the implemented eco-innovations.

Figure 2: Technics of digital marketing used in promotion of eco-innovations



Source: own resourcing, 2017

The second research aimed at defining the current state of use of modern communication tools when promoting eco-innovations in the segment of SMEs in the building industry. The importance of such tools is a key factor for the majority of businesses operating in the building industry. In contrast to the first research, where we trying to find out the use of specific marketing communication tools when promoting the implemented eco-innovations, the second study focused on awareness of businesses of modern marketing communication tools and their prospective use in communication strategies. Even though the online channel is seen as the most effective tool, businesses still believe in traditional forms of advertising because they do not have sufficient knowledge of how to combine the offline and online environment by way of cross-line communication. Use of communication tools of the Phygital concept belongs to the newest trends in marketing communication. The research showed that managers of Slovak businesses operating in the building industry did not have sufficient knowledge hereof. We found out that only 10 % of the businesses had ever encountered the term of Phygital concept. However, none of them is currently using the concept. The possibility of combining traditional communication messages with the online or

digital world provides businesses with new opportunities, helps them exercise influence and makes them more attractive for end users. There is a question, however, when businesses become aware of the hidden potential of use of modern marketing communication tools.

5. Conclusion

As Slovak businesses are a part of the European environment, they can feel globalisation pressures more intensively. Globalisation can be seen as a microeconomic phenomenon influencing businesses´ mission, vision and strategies. Modern information and communication tools as well as new, more economical, more effective and ecological technologies are gaining much more popularity worldwide. Implementation of the principles of sustainable development into business planning has a positive impact on competitivity of the businesses and the society itself. Corporate responsibility is building trust towards markets economy, open business and globalisation. There is a clear need for innovations in the business sector because they represent essence for survival and may bring about improvements and competitive advantages in relation to other businesses as well as global markets. Despite a lot of efforts, the environment is being threatened much more than previously expected. In order to fight the danger, we have to implement systematic and sustainable measures on the global level as soon as possible. Innovative solutions mostly have a positive impact on businesses, mainly when it comes to those measures improving production processes, reducing environmental impact or communicating corporate social responsibility while increasing global awareness. Effective use of resources, a higher turnover, a better brand image and a higher competitive advantage are the examples of the benefits businesses can gain when integrating environmental sustainability. Yet there is room for further improvement in the field of production, marketing or marketing communication. Businesses are bound to gain trust or enhance ecological awareness and thus change a customers´ way of thinking and life. Implementation of eco-innovations and an effective marketing strategy are key factors for success. Nowadays companies can make use of technics of digital marketing or many other modern marketing tools. A lot of businesses are following the trend of eco-innovations. Existence of digital marketing enables spreading this trend in a simpler and global way helping businesses gain a better market position.

Globalisation, liberalisation and freedom of movement of goods and workforce, a permanent lack of time and a continuous need for mutual communication all require more effective and available forms of communications. The digital environment is becoming more popular thanks to its flexibility to satisfy these needs. At first it seemed to be a place for fun for computer literature consumers but it turned into the widespread social phenomenon. People of all age groups, with different education and social background spend more time communicating in the digital environment. Sellers understood quickly that the digital environment had great potential not only for fun and education but also for business processes. Due to high dynamicity of the markets and the global online environment businesses have to follow the up-to-date trends in market communication. As technological progress is slower than their capability of adaptation, it is important to fill the gaps in use of ordinary marketing communication tools. Unified communication in both offline and online space creates a synergic effect even though the ability to attract recipients drops with their growing immunity to advertising. Businesses which are not building their image through ecological responsibility fail to communicate their eco-innovation activities to the public.

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STATIONARY FIELDS OF RETAIL GRAVITATION IN MECHANISMS OF GLOBALIZATION RELATING TO THE SUN-EARTH RELATIONS

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Abstract. Partial differential equations of the retail gravitation field are derived. The retail gravitation field is a vector field that has two components. The first component is a vector field of the intensity of retail gravitation. The intensity of retail gravitation is defined through the Newtonian scalar potential φ of retail gravitation. The second component of the retail gravitation field is the vector field of retail gravitation induction. Induction of retail gravitation is defined through the vector potential $\vec{A}$. The course of economic processes is defined non-relativistically in space and time on the geoid and in the cosmic space near Earth assuming that the axioms of rationality, continuity, non-satiation and convexity are the general economic axioms associated with the genetic essence of carbon-based life existing in any part of the universe. The geoid is represented by the Earth´s tri-axial level ellipsoid. The cosmic space near the Earth is defined by the outer boundary of the Hill sphere and Kármán line. This work uses a $\sum_3$ coordinate system, i.e. an ECEF (Earth-Centered, Earth-Fixed) Cartesian coordinate system, the origin of which is located at the gravitational center of the Earth with axis fixed to the geoid. The demands created by the economic development of key countries participating directly or indirectly in research of Sun-Earth relations and the space industry are analyzed.

Keywords: cyberspace, geoid, human genome, neuroeconomics, space economics

JEL Classification: A12, B41, D12, D41, D87

1. Introduction

The Sun, that is a main-sequence star of spectral class G, generates in heliosphere space weather. The term space weather refers to various phenomena that physically involve the transfer of mass, momentum, jerk, energy and charge in heliospheric magnetized plasma that interacts with the geosphere and its sub-spheres. In addition to phenomena involving transfers between individual parts of the geosphere, space weather also affects technological systems found both in the heliosphere and below the Kármán line, as well as technological systems on the ground.

By analyzing the analytical structures of microeconomic and macroeconomic systems and comparing these to the analytical structures of theoretical physics, we have established a principle of correspondence between classical non-relativistic mechanics and new economic variables that were derived from the theory of immediate commodity price (Pospíšil, 2013), (Zeithamer, 2013, 2014 a, 2014 b, 2015 a, 2015 b), (Zeithamer & Pospíšil, 2015, 2016 a, 2016 b). The newly introduced economic variables describing future price development over space and time are as follows: price jerk ↔ third derivative of path over time, price jounce (price shake) ↔ fourth derivative of path over time and price crackle ↔ fifth derivative of path over time (here ↔ means "corresponds to"). Methods for forecasting space weather also employ the principle of correspondence between applications of classical relativistic mechanics of continuum in meteorology and applications of classical relativistic magnetohydrodynamics in solar physics, physics of magnetized plasma in interplanetary space, and physics of the Earth´s magnetosphere.

Quantifying future states of magnetized heliospheric plasma sub-systems in space weather is analogous to developing methods for meteorological forecasts (Siscoe, 2007). One approach to quantifying the size of storm systems in terrestrial meteorology is to classify them into three basic categories in descending order based on the extent of the Earth's surface that is affected: extratropic cyclones, hurricanes and tornadoes. Storms in cosmic weather can also be classified in descending order into three basic sizes: M-region storm, coronal mass ejection, super auroral electrojet. The correspondence principle for forecasting space weather and terrestrial weather can be formulated as follows: extratropical cyclone ↔ M-region storm; hurricane ↔ coronal mass ejection; tornado ↔ super auroral electrojet (Siscoe, 2007).

The principle of correspondence that for two different scientific fields may also be called the binary principle of correspondence is a simple representation that assigns quantifiable variables from one scientific field to a quantifiable variable of a second scientific field based on the same qualitative importance of mechanisms of transfer of mass, momentum, jerk, energy and charge describing the development of systems states in two different scientific fields. Finding a principle of correspondence requires a high degree of understanding of the two different scientific fields. If a principle of correspondence is derived between n scientific fields, then this principle of correspondence is called the n – ary principle of correspondence.

Similar to meteorology, economics and other scientific fields, phenomena and processes of space weather are transformed into cybernetic space and transmitted at a speed less than or equal to the speed of electromagnetic signals in the universe, which numerically is $c = 299{,}792.758\ km.s^{-1} \doteq 300{,}000\ km.s^{-1}$. In this work, cyberspace is a physical environment through which electromagnetic and gravitational signals are transmitted at the speed of light in a vacuum or a speed slower than the speed of light in a vacuum but close to 299,792.758 $km.s^{-1}$.

To this definition of cyberspace we must add that at the current stage of development of physics and biophysics, the transmission of a gravitational signal is detected by terrestrial detectors that transform it to an electromagnetic signal, and the generation of this electromagnetic signal is recorded as evidence of the passage of a gravitational signal through cybernetic space. In many cases, the detector (located on planet Earth or in its direct proximity) records an electromagnetic signal that was generated directly in the area of space where the gravitational signal was generated.

Cyberspace defined as a physical environment also affords the opportunity to compare and transfer to this environment knowledge from other scientific fields, in particular physical economics, biophysics, cybernetics, informatics, physiology, neuroeconomics, sociology,

psychology, criminology and criminal justice, theoretical politics including international relations, national security policy, law, economics and other sciences. The speed of transmission of electromagnetic and gravitational signals in cyberspace is finite and equal or less than the speed of light in a vacuum. Then it is possible to define the position of a point and distances between points in cyberspace.

But what time intervals are necessary for an electromagnetic signal and a fast solar wind proton moving at a speed of 800 $km.s^{-1}$ to travel a distance equal to 1 AU? Electromagnetic and gravitational signals require approximately 8.5 minutes to travel a distance of 1 AU while a fast solar wind proton approaching the Earth at a speed of 800 $km.s^{-1}$ takes approximately 2.2 days to travel 1 AU. A cosmic ray proton with 10^{20} eV of energy (1 $eV = 1.602 \,.\, 10^{-19}$ J) will travel 1AU in 9.2 minutes. To travel a distance equal to the length of the Earth's equator, modelled on a sphere 12,742 km in diameter, an electromagnetic signal will need only 0.13 s.

2. Methods and results of physical economics

2.1 Introductory notes

The Lausanne School of Economics and the Cambridge School of Economics were among the first schools of economics to systematically describe and analyze economic processes using methods and models of non-relativistic theoretical physics, especially those of mechanics and thermodynamics (Zeithamer, 2012, a; Zeithamer, 2012, b). Both of these schools of economics laid the foundations for a new field of science that incorporates the current state of knowledge of basic research in the areas of physics, economics, sociology, neurophysiology and biophysics and is known as physical economics. The term physical economics is used in the book title "Econophysics and Physical Economics", authored by Peter Richmond, Jürgen Mimkes and Stefan Hutzler (Richmond et al., 2013).

Another significant cornerstone of physical economics was laid in the late 1930s in the United States with the discovery of the empirical law of retail gravitation, formulated by prof. John William Reilly and inspired by Newton's law of gravity (Reilly, 1929), (Reilly, 1931). In conjunction with the law of retail gravitation, we should note that it was also used in a heuristic manner to formulate the law of demographic gravitation (Stewart, 1948).

A major milestone in the historical development of physical economics is econophysics, the first theses of which were based on the physics of the early twentieth century. At the turn of the millennium, this research crystallized into a comprehensive set of applications of statistical physics in economics, laying the foundation for the new scientific field, i.e. econophysics (Zeithamer, 2012 a; Zeithamer, 2012 b).

The latter twentieth and early twenty-first centuries are periods in which several Czech economists made significant contributions to the advancement of physical economics. This group of authors includes, for example, prof. Pavel Hrubý and Ing. Jaromír Kálal (Hrubý & Kálal, 1974) and prof. František Drozen (Drozen, 2008)**.**

2.2 Axiomatic theory of a stationary field of retail gravitation

Reilly's discovery of the phenomenon of retail gravitation at the turn of thirties and forties poses a fundamental question for physics: Is it possible to theoretically derive the law of retail gravitation from Newton's law of gravitation? An affirmative answer to this question is given in references (Zeithamer, 2015 b) and (Zeithamer, 2016 a), (Zeithamer, 2016 b). This

response not only demonstrates the importance of Reilly's discovery for economics and physics, but also with respect to consilience.

This work assumes that preferences exhibit the characteristics given by the following axioms: I. 1. Axiom of reflexivity; I. 2. Axiom of completeness; I. 3. Axiom of transitivity; I. 4. Axiom of continuity;I. 5. Axiom of convexity; II. 1. Axiom of non-satiation (Never Get Enough).

This work uses an ECEF Cartesian frame of reference $\sum_3$, the origin of which is located at the gravitational center of the Earth with axes fixed to the geoid (Earth-Centered, Earth-Fixed frame of reference). For the description of retail gravitation this coordinate system is a sufficiently accurate approximation of the inertial coordinate system (see references (Burša & Kostelecký, 1999), (Leick, 2004)).

Let A be a city on the geoid with population P_a. Because retail flows are realized in three-dimensional space and time, we define the stationary potential of retail gravitation of city A by the relation $\varphi(x,y,z)=\varphi(D_a)=\alpha(A,E_A)\frac{N_a}{D_a}$, where D_a is the distance of the observation point from city A measured along the geoid. If the distance measured along the geoid is such that the geoid curvature can be neglected, then the distance of the observation point from city A is given by the relation $D_a=\sqrt{(x-x_A)^2+(y-y_A)^2+(z-z_A)^2}$, where x,y,z are the coordinates of the observation point and x_A, y_A and z_A are the coordinates of city A; $\vec{D}_a=(x-x_A,y-y_A,z-z_A)$, i.e. $\vec{D}_a=(x-x_A)\vec{i}+(y-y_A)\vec{j}+(z-z_A)\vec{k}$ is the position vector of the observation point, from which retail trade is attracted along the geoid in the direction of city A, or to mass point A; $\vec{i}$, $\vec{j}$ and $\vec{k}$ are orthogonal unit vectors. Proportionality constant $\alpha(A,E_A)$ is expressed in units $[\alpha]=c.u.\ m^2\ pers.^{-2}$, where $c.u.$= currency unit, m^2 = square meter, pers.= person; A is mass point with coordinates x_A, y_A and z_A, i.e. mass point $A=[x_A,y_A,z_A]$ depicts city A; E_A– is an economic facility of city A; N_a– is the number of long-term economically active adult inhabitants in city A at time t. Vector field $\vec{K}_a$ of the intensity of retail gravitation is determined by the negative gradient of potential of retail gravitation φ, i.e. $\vec{K}_a=\left(-\frac{\partial\varphi}{\partial x}(D_a),-\frac{\partial\varphi}{\partial y}(D_a),-\frac{\partial\varphi}{\partial z}(D_a)\right)$. This means that the magnitude K_a of the intensity vector of retail gravitation is given by the relation $K_a=\left|\vec{K}_a\right|=\alpha(A,E_A)\frac{N_a}{D_a^2}$. For the intensity vector of retail gravitation the following relations apply $div\,\vec{K}_a=0$, $rot\,\vec{K}_a=\vec{0}$, and the potential of retail gravitation is obtained by solving the Laplace homogeneous partial differential equation $\Delta\varphi=0$. Any vector field of retail gravitation $\vec{M}_a$ can be considered the superposition of two fields, one of which is determined by scalar potential while the second is determined by vector potential $\vec{A}$. Let us designate the field of retail gravitation determined by scalar potential φ as $\vec{K}_a$ and the field of retail

gravitation determined by vector potential $\vec{A}$ as $\vec{L}_a$, then $\overrightarrow{M}_a = \vec{K}_a + \vec{L}_a$, it means that the vector of retail gravitation at the observation point is expressed by the relation

$$\overrightarrow{M}_a = -\ grad\ \varphi\ +\ rot\ \vec{A}\ . \qquad (1)$$

The first summand in relation (1) determines the amount of retail trade that can be attracted to city *A* by a single inhabitant who is at the observation point. The second summand in relation (1) determines the amount of retail trade that can be relocated from city *A* to the observation point per single inhabitant found at the observation point. The presented theory of a stationary field of retail gravitation implicitly contains axiom III: 1, which concerns the continuity of the field of retail gravitation, i.e. the scalar and vector stationary potentials are continuous functions of spatial coordinates and time.

2.3 Binary principle of correspondence

A comparison of the analytical structure of economics and the analytical structure of non-relativistic theoretical mechanics has led to the following conclusion: path *s* traveled by a body over time *t* corresponds with price *n* of the commodity at time *t*, i.e. $n(t) \leftrightarrow s(t)$ for $t \in \langle 0, +\infty)$. There is a fundamental difference between the real functions of real variable *t* "commodity price" *n*(*t*) and "the path traveled by the body" *s*(*t*). The path traveled by the body is a non-decreasing real function of time, but the commodity price may over certain time intervals increase or decrease as a function of time. The first derivative of path *s* according to time *t*, i.e. $\frac{ds}{dt}(t)$, is the path traveled by the body over a unit of time, called the instantaneous magnitude of velocity of the body. A change in commodity price over a unit of time is the first derivative of commodity price *n* over time *t*, i.e. $\frac{dn}{dt}(t)$. For the time being in this work, a change in commodity price over a unit of time is called the "tempo of commodity price change" or "price tempo". The change in commodity price over a unit of time may be positive, zero or negative, while a change in the path per unit of time is nonnegative (positive or zero). The second derivative of the path of the body over time means the first derivative of the velocity of the body is a change in the velocity of the body over a unit of time, called the acceleration of the body. The second derivative of commodity price over time means the first derivative of price tempo over time and in this work is called "acceleration of commodity price", or price acceleration, or "velocity of price tempo". The third derivative of the path of the body over time, i.e. the first derivative of the acceleration of the body over time is the instantaneous magnitude of jerk of the body (body jerk). The third derivative of the commodity price over time means the first derivative of the price acceleration, or price jerk (Zeithamer, 2015 a)**.** The economic significance of price jerk is the change of price acceleration over a unit of time. The fourth derivative of the path of the body over time is, from a physical perspective, the change in magnitude of jerk of the body over a unit of time (i.e. also the speed with which body jerk changes). There is no established Czech term for this, but in electrical engineering the fourth derivative of a signal is often called the signal vibration. The fourth derivative of commodity price over time, $\frac{d^4n}{dt^4}(t)$, that expresses the change in commodity price jerk over a unit of time is the tempo of price jerk, or price vibration (quake) or commodity pricequake. The fifth derivative of the path of the body over time means the physical change in speed of body jerk over a unit of time, or the acceleration

of the body jerk. The fifth derivative of commodity price over time is the economic change in tempo of commodity price jerk over a unit of time, or price crackle.

In this section of the work it is necessary to mention the following notes:

1) In theoretical physics and applied physics the physical quantities of speed, acceleration and jerk are vector quantities. This pertains to railway engineering, construction of machinery, civil engineering and aviation engineering.
2) This work uses the scalar meaning of price. An article devoted to the vector meaning of price is being prepared for publication.

3. Conclusion

Basic Czech research into the principle of correspondence between physics and economics began in the early 1970s. Pioneers of this basic research in the Czech school of economics included prof. Dr. Ing. Pavel Hrubý and his co-worker Ing. Jaromír Kálal. With periodic breaks of varying length, the research have continued to the present day and is steadily incorporating current findings obtained in the field of Sun-Earth relations. The experimental work has resulting in numerous studies, the most important of which are cited in this work; study authors are prof. Dr. Ing. Pavel Hrubý, Ing. Jaromír Kálal doc., Ing. František Drozen, CSc. (VŠE in Prague), prof. Ing. Jiří Pospíšil, CSc. (ČVUT in Prague), Ing. Tomáš Zeithamer, Ph.D. (VŠE in Prague) (Hrubý & Kálal, 1974), (Drozen, 2008), (Pospíšil, 2013), (Zeithamer, 1986, 1988, 1990, 2012 a, 2012 b, 2013, 2014 a, 2014 b, 2015 a, 2015 b, 2016 a, 2016 b), (Zeithamer & Pospíšil, 2015, 2016 a, 2016 b).

The transfer of mass, momentum, jerk, energy and charge in Sun-Earth relations is the fundamental process that affects the majority of communication technologies we encounter on dynamically changing markets. Therefore, it is essential for the scientific community to understand the axioms of market dynamics in its basic research, and based on this understanding play an active and independent role in the changing business environment.

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THE GLOBAL REPORTING INITIATIVE AND ITS IMPACTS IN V4 COUNTRIES: MAKING BUSINESS MORE SUSTAINABLE?

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Abstract. Sustainability of entrepreneurship has been discussed for several decades as a necessary precondition for future development of our planet, which is enmeshed in the on-going process of economic globalization. Nowadays, firms are held responsible for both the societal and environmental impacts of their activities but, it is still difficult to find appropriate tools to turn the overall sustainability of business into reality. Soft methods, such as voluntary reporting, play a prominent role. To support sustainability through voluntary reporting, numerous initiatives appeared in the past decades, some of them with truly global ambitions. However, despite their rapid spread, their practical use is rather unbalanced geographically, since some regions remain under-represented. The under-representation is typical also for the Visegrad Four (V4) countries that are connected to worldwide reporting initiatives primarily through foreign multinationals rather than domestic companies. Moreover, little attention has been paid to the initiatives both by practitioners and scholars in these countries. To fill in the research gap, the paper examines the participation of V4 firms in one of the prominent global reporting projects – the Global Reporting Initiative (GRI). Using the data from the Sustainable Disclosure Database (SDD), the analysis reveals the structure of subjects involved, the durability and nature of their reporting and the compliance of their reports with GRI standards. It shows that not only the involvement of V4 business entities is really rather limited but there are also obvious differences among the V4 countries in terms of the significance of the GRI reporting system.

Keywords: Global Reporting Initiative, V4 countries, business ethics, responsible entrepreneurship

JEL Classification: F42, F61, M14

1. Introduction

Since the debate on the rising power of the large multinational companies (MNCs) started and the first calls for disclosure of their environmental and social practices appeared in the early 1970s, non-financial corporate reporting has been spreading rapidly all over the world. Until the end of the 20th century, the boom generated an inexhaustible quantity of disclosure approaches reflecting different societal and economic conditions in various countries. However, at the same time the ever-extending non-financial reporting practices resulted in a growing skepticism concerning the credibility and trustworthiness of their contents, which is referred to as the "credibility gap" or "CSR communication paradox" in contemporary scholarly literature (Knebel – Seele, 2015). As a consequence, numerous global and international standards of reporting, like the GRI or the United Nations (UN) Global

Compact, emerged.

From the very beginning, the spontaneous boom in disclosure practices and the subsequent spread of international standards, as well as their implementation by business organizations, have generated considerable scholarly interest. The literature on the determinants, contents, quality and impacts of corporate reports has grown. Nowadays, the research deals both with the variety of disclosure areas and the broad geographical scope of developed and developing regions (c. f. Einwiller et al., 2016).

However, despite the major current focus in corporate reporting, some gaps in the state of knowledge still remain. As Fifka (2013) demonstrates, little attention has been paid to deficits of reporting in Central and Eastern Europe[17] produced by specific public perceptions and demands on businesses still influenced by the totalitarian past. A recent KPMG survey of corporate social responsibility reporting[18] even revealed lower than average reporting rates by 3 of the V4 – the Czech Republic, Poland and Slovakia. These countries scored worse than Russia, Romania or Mexico (KPMG, 2015: 33).

This paper contributes to extending the picture of reporting limits in Central and Eastern Europe in general, and V4 countries in particular (c.f., Zemanová, Druláková 2016), with an analysis of general geographical, organizational and sector patterns of almost negligible adherence of V4 business entities to the disclosure system of one the most prominent parts of the global reporting architecture, the GRI. The analysis draws on the data from the GRI SDD valid to 31st August 2017. The datasets were collected for each V4 country separately and include the records for organizations that registered their disclosure reports each year in a more detailed breakdown by size and sector. In addition, the legal form and ownership (foreign/domestic) of the registered companies from V4 was also observed. On the other hand, due to the limited extent of the paper, attention could not be paid to qualitative aspects of reporting the contents of reports and compliance with GRI standards.

To fulfill its aim the remainder of the paper proceeds as follows. First, it briefly explains the general mission, purpose and growing importance of the GRI initiative and then points to its weaknesses and constraints. Second, it focuses on the dissemination of the use of the SDD in the V4 region and its sectorial and organizational aspects. Third, it completes the picture with a more detailed analysis of SDD reporting in individual V4 countries. It reveals a difference in diffusion of reporting practice between the Czech Republic and Poland on the one hand, and Slovakia and Hungary on the other. Finally, the concluding section discusses the contribution of the GRI reporting system to sustainability in the V4 region.

2. The GRI as a sustainability disclosure standard

The history of the GRI dates back to 1997. It was established by two non-profit organizations (the Coalition for Environmentally Responsible Economies and the Tellus Institute) with support by the UN Environment Programme. In 2000, the GRI published the initial version of its Guidelines to become also the first comprehensive global sustainable reporting framework. In the following years, GRI was able to build on the on-going support of the UN and create powerful coalitions with governments and their agencies,

[17] As compared not only to North America and Western Europe but also to several parts of Asia where reporting rates increased considerably an a few previous years.

[18] An analysis of reporting from 4500 firms among 45 countries, (i. e., the 100 largest companies in each country).

intergovernmental organizations,[19] businesses as well as the non-governmental sector, civil society, labor and experts in various fields.

Consequently, the GRI became an international leader in sustainability reporting. Four generations of its standards that guide businesses on what and how to report and provide detailed lists of performance indicators might even seem analogous to accounting principles (Einwiller et al., 2016). Nowadays, the GRI, with more than 11,000 organizations in over 90 countries involved and almost 43,000 reports registered in the SDD, is considered to be the most widely used and one of the most influential among process guidelines (cf. Marimon et al., 2012; Brown et al. 2009a). According to the KPMG (2015: 42) it "remains the most popular voluntary reporting guideline worldwide". In addition, it is also believed to be a good starting point for sustainability reporting (Alonso-Almeida et al., 2014).

However, despite its remarkable achievements and an undoubted contribution to addressing global environmental, social and economic challenges, several problematic aspects in the GRI reporting system remain unresolved. According to GRI critics, the voluntary reporting framework enables an enormous variance in disclosure frequencies, completeness, comprehensiveness and accessibility (Knebel – Seele, 2015). At the same time, the adherence to GRI as to any other reporting standard might be instrumental (e.g., for legitimacy reasons) and does not translate into a greater accountability automatically (Brown et al., 2009b). Thus, discrepancies between the intended and actual use of GRI Guidelines appear[20] (Brown et al., 2009a; Vigneau et al., 2015).

Last but not least, despite the ever-increasing participation of business companies in the GRI, the cumulative percentage is still small with substantial differences across regions, sectors and types of companies[21] (Marimon et al., 2012; Alonso-Almeida et al., 2014). The lesser effectiveness of voluntary regulation in developing regions is also a reality (Vigneau et al. 2015).

As Marimon et al. (2012) show, the worldwide and regional diffusion of the GRI standards follows an S-shaped (sigmoid) curve. The flat beginning of the curve demonstrates a slow growth in numbers of participants providing their reports to the GRI at the initial stage, then an increase in the growth rate until a saturation point is achieved and, finally, the fall of the growth rate again. There are remarkable differences in the growth rate trends when observed worldwide and separately in different regions.

3. Reporting to the SDD in V4 Countries – general patterns

According to the records in the SDD, the GRI was introduced in V4 countries by the tobacco, automotive and telecommunications industries with a certain delay in comparison to Western Europe. The early birds submitting their reports[22] to the database appeared already in 1999 in Sweden, Great Britain and the Netherlands, to be followed soon by others from

[19] Next to the UNEP, the GRI closely collaborates with the UN Global Compact and the Organization for Economic Cooperation and Development.

[20] E.g., as the firms (particularly MNCs) are influenced by the GRI, they try to shape its new volumes and updates.

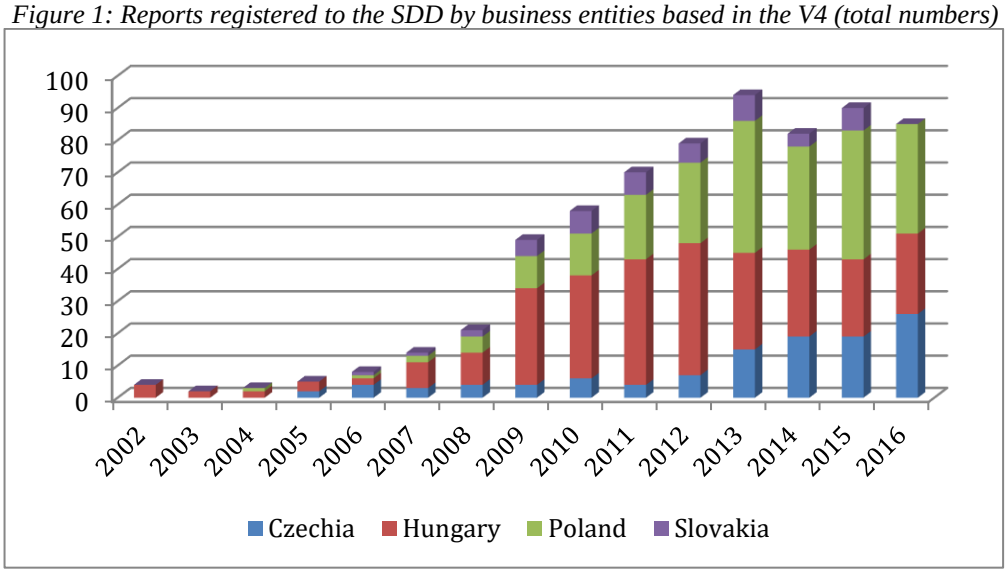
[21] According to Brown et al. (2009: 574) "[m]ost of the GRI reporters are large multinational corporations, typically in such sectors as utilities, oil and gas, banking, automotive industry, mining, chemicals and synthetics, forestry and paper. Small and medium size companies (SMEs) are barely represented."

[22] The first reports used a preliminary GRI standard.

Western Europe and North America and, to a lesser extent and at a slower pace, a few newcomers from other regions.

As for the V4, the first records in the SDD are for 2002 when two branches of multinational companies based in Hungary – the British American Tobacco Hungary and Denso Manufacturing Hungary Ltd. – evaluated their economic, social and environmental performance with the use of G1 standard (Figure 1). One year later, two more multinationals operating in Hungary followed (with a G2 report) – Magyar Telekom and the related Matáv Group. In 2004 British American Tobacco pioneered the GRI reporting also in Poland.

Figure 1: Reports registered to the SDD by business entities based in the V4 (total numbers)



Source: Based on the data from the SDD, [Online]. Available http://database.globalreporting.org/search/.

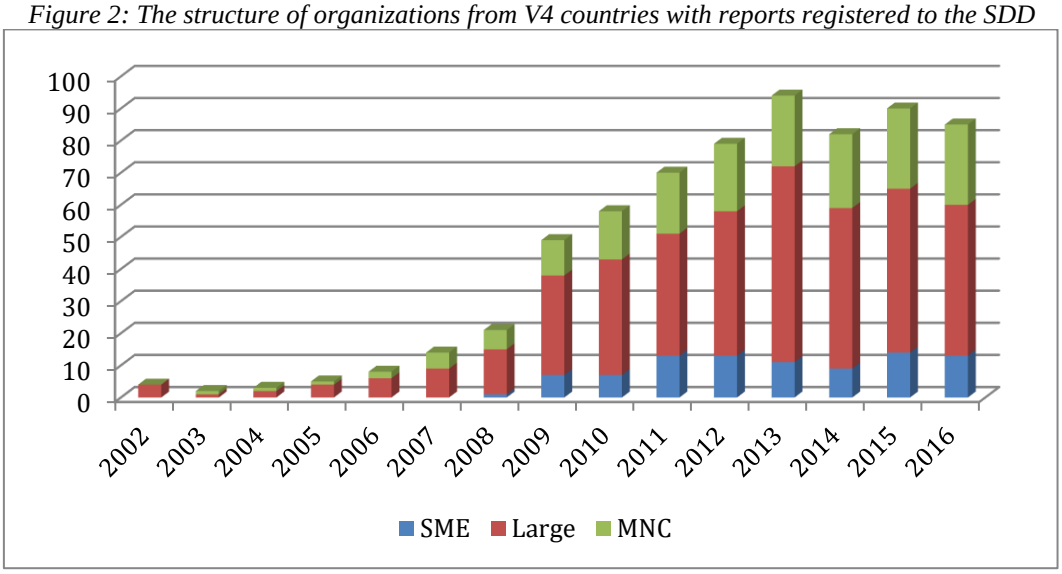
However, as is obvious from Figure 1, the real spread of GRI standards in the V4 region started only in the late 2000s, and continued at a very slow pace until 2013. Since then the annual number of reports registered to the SDD by organizations based in V4 countries has been stagnating (which might indicate that the saturation point has already been reached). The SDD has gained some but very limited popularity among business organizations in Hungary since 2007, and later also in Poland and the Czech Republic. In contrast, the interest in Slovakia has always been limited to less than 10 entrepreneurial subjects submitting to the SDD per year with, surprisingly, no report registered by Slovak organizations for 2016 and 2017 so far.[23]

From the regional perspective, the most active type of companies are large firms followed by MNCs. The SDD has been almost neglected by small and medium sized enterprises (SMEs – see Figure 2). This corresponds with the general tendency of SMEs to move slower along the path of sustainability performance than MNCs and large companies; ascribed on the one hand to the (financial, human, organizational) constraints of SMEs and the insufficiencies of reporting standards to address their specific needs on the other (Borga et al., 2009).[24]

[23] The information is relevant as of 15th September 2017.

[24] As for the GRI, the first three generations of GRI reporting standards (G1 – G3) only consider the conditions of SMEs with notes and suggestions regarding possible adoption in their environment.

Figure 2: The structure of organizations from V4 countries with reports registered to the SDD



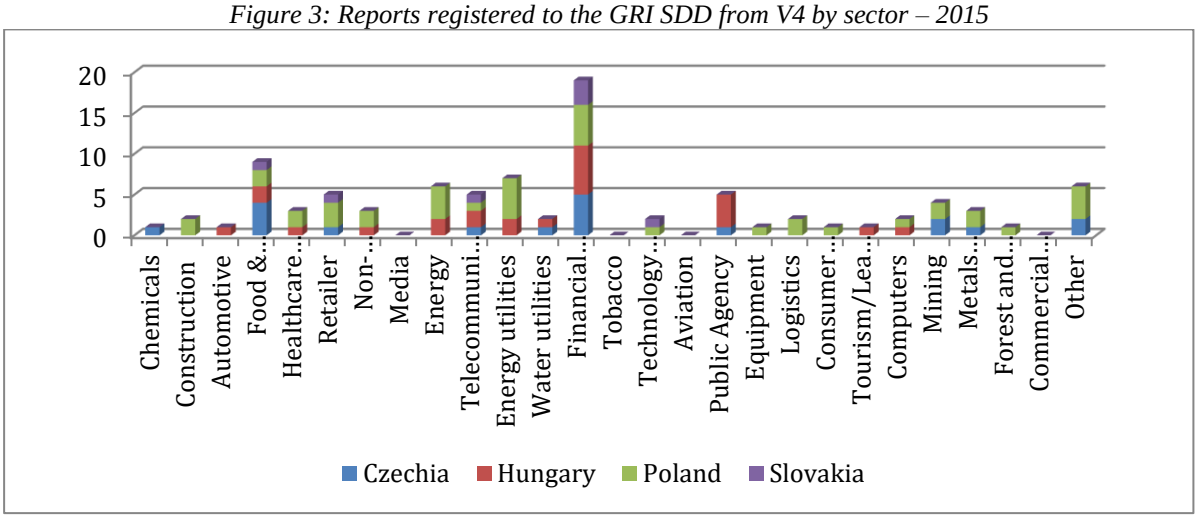
Source: Based on data from the SDD, [Online]. Available http://database.globalreporting.org/search/.

Furthermore, there are remarkable differences in the implementation of GRI standards among economic sectors. As Figure 3 demonstrates using the example of 2015, the adherence to GRI reporting standards is most widespread among financial institutions, food and beverage companies and in the energy sector. This corresponds with the conclusions of previous research (Ogrizek, 2002; Frynas 2010; Marimon et al., 2012), proving these sectors to be leading both in CSR and GRI implementation in the developed world, and at the same time to stimulate their transfer to less developed countries.

Indeed, a more complex view of the structure of reports from V4 companies to the financial sector and food and beverage sector reveals that to a large extent their number is given by the presence of MNCs contributing to the SDD in V4 markets (KPMG, Pricewaterhouse, PwC, ING Group, Coca-Cola, Nestlé, Danone, Heineken) that mobilized a few large (mostly foreign-owned) companies (Karlovarské minerální vody, Dreher Sörgyárak) and exceptional cases of SMEs (Buszesz, Hortimex) to join. In contrast, in the energy sector the GRI system is used predominantly by large state-owned and private companies (EDF Polska, Grupa Lotos, Paks Nuclear Power Plant), followed by MNCs (ČEZ, TIGÁZ, MOL Group) and only two SMEs (Polskie LNG, Synergy), and is given by the trends in this economic branch. Furthermore, there are sectors with only 1-2 registered to SDD (media, tobacco, aviation…).

Last but not least, a substantial number of companies submitted to the SDD only temporarily. According to our calculations, based on the SDD data only 12,4 % of V4 companies registered their reports longer then 5 years and 1 % then 10 years.

Figure 3: Reports registered to the GRI SDD from V4 by sector – 2015

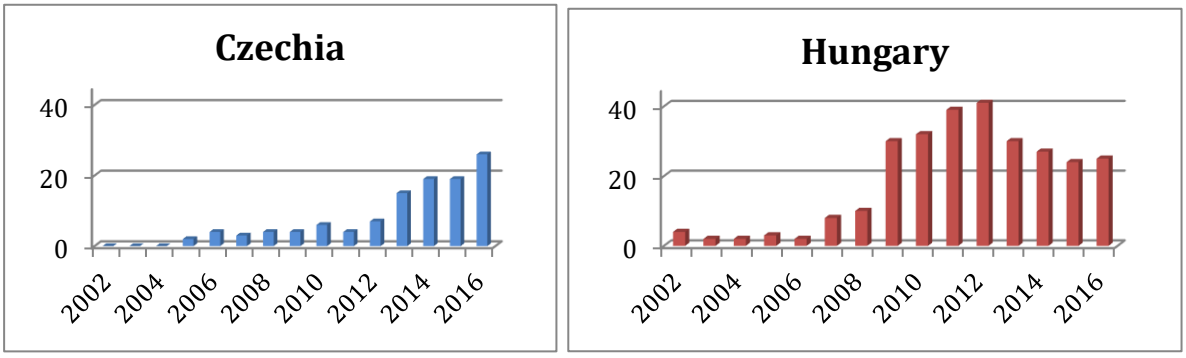


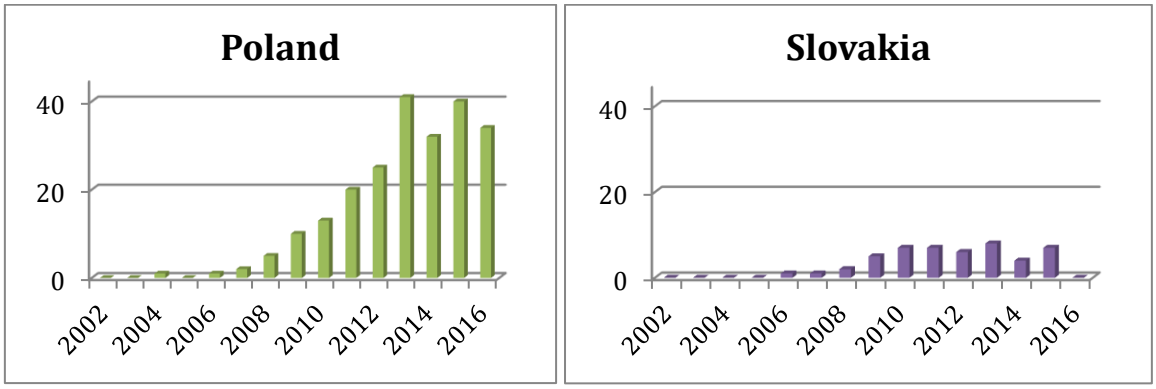
Source: Based on the data from the SDD, [Online]. Available http://database.globalreporting.org/search/.

4. Reporting to the SDD in the V4 – a country analysis

When comparing the growth in total numbers of reports submitted by V4 companies to the SDD (Figure 1 above) with the dissemination pattern identified by previous research (the described S-curve by Marimon et al., 2012), it might seem that the diffusion of the GRI reporting standards in the V4 region has already progressed to the phase of saturation. Thus, one might expect that without a substantial change in motivations of companies from the region for the use of GRI standards or at least registering their CSR reports to the SDD database there is little potential for acceleration of growth at the moment. However, a closer look at individual V4 countries reveals that the general developments comprise of different tendencies at national level. This is displayed in Figure 4.

Figure 4: Reports registered to GRI – country patterns





Source: Based on the data from the SDD, [Online]. Available http://database.globalreporting.org/search/.

Apparently, the Czech Republic is the only V4 country where the number of firms reporting to the SDD steadily increases, and that seems to have moved, in terms of the diffusion of the SDD reporting practice, from the initial phase to expansion. However, the total number of reports submitted by Czech businesses has been rather low so far, which makes the GRI marginal for the country, as is the case of other V4 states. Concerning Poland, the tendency is not clear due to the fluctuations in 2014 and 2016. The data for Slovakia suggest that it still remains in the initial phase. Hungary appears an exception not only in the regional but even in the broader international context due to the decline since 2013. But evidently, with the maximum of 41 reports submitted to the SDD in 2012 (which only Poland reached in 2013), it played a pioneering role until the early years of this decade.

5. Conclusion

The evidence for V4 countries from the SDD database presented in this paper confirmed the geographical differences in the significance of the GRI reporting system revealed by previous research. In addition, we extended the picture when showing that they appear not only among regions, as emphasized so far, but also intra-regionally. Whereas Europe as a whole is considered to play a leading role in the adoption of the GRI reporting system (Marimon et al., 2012), its diffusion in the V4 states remains marginal, resembles that in developing countries and is far from making the business in the region more sustainable. Moreover, without a substantial change in incentives and/or motives for the use of the system this will hardly be changed in the near future.

The unique position of the V4 countries in the heart of Europe, within the European Single Market and at the same time at the periphery of the implementation of the GRI standards, makes them interesting for further research. Future quantitative work could specify the diffusion patterns with the use of a logistic model. Qualitative inquiries might provide a deeper insight into the content of the reports, reflecting the level of actual implementation. They should also focus on the impetuses and constraints of the dissemination of the GRI standards among V4 business entities and the role of MNCs and large foreign-owned companies in this process.

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CORRUPTION AS A GLOBAL PROBLEM

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Abstract. One of the most serious global problems today is corruption. In the article we focus on its definition, economic and social consequences, causes and ways to limit corruption. Corruption can be understood in a strict sense of the word (legal sense), but also in a broader way (the ethical principles are taken into account too). It relates to the phenomena such as cronyism, nepotism, state capture, lobbying. Consequences of the corruption are seen in many ways, e.g. non-optimal allocation of resources, deformation of competition environment. Corruption and non-transparent rules lead to high administrative intensity and high transaction costs. It may affect investment, economic growth, structure of public spending. In addition to the economic implications, other risks arise, e.g. in a corrupt environment citizens lose trust in state and rules, casting doubt on the rule of law and equality before the law and liberal democracy as such. We monitor the causes of corruption while studying both formal and informal rules. Anti-corruption strategies are generally focused on repression and prevention, but public awareness is very important too. Corruption transactions involve demand and supply sides; thus anti-corruption strategies have to be oriented on both public administration and entrepreneurs. The search for a solutions needs to be seen in a broader context, because the limitation of corruption is related to transparency and public accountability, government effectiveness, rule of law and the functioning of the institutions. International, global initiatives in the area of economics, politics and justice are needed to complement national measures.

Keywords: corruption, cronyism, state capture, anticorruption strategies

JEL Classification: F60, H11, K42

1. Introduction

V príspevku sa venujeme vymedzeniu korupcie a s ňou súvisiacich pojmov, príčinám a dôsledkom, ktoré korupcia spôsobuje. V závere sa pokúsime naznačiť cez aké nástroje a activity je možné korupčný potenciál obmedziť.

2. Vymedzenie korupcie

Pokiaľ ide o vymedzenie pojmu korupcia existuje viacero názorov a viacero ťažkosti, ktoré súvisia s jej interdisciplinárnym charakterom, širšími súvislosťami a kultúrnym kontextom. Korupcia musí byť vnímaná kontextuálne a diachronicky. (Pardo 2017). V korupcii sa prelínajú hodnoty, normy a záujmy. Pri meraní jej rozšírenia narážame na problém nesúladu medzi tvrdými dátami (preukázanými prípadmi) a vnímaním korupcie.

Pri korupcii je možné rozlíšiť nelegálnu korupciu, ako porušenie zákona a širšie chápanie korupcie ako porušenie morálnych zásad. Zakázané správanie predstavuje konsenzus, na ktorom sa spoločnosť v danom čase zhodne, že dané správanie vyžaduje zákaz a sankcie.

Najčastejšie sa korupcia definuje ako zneužitie verejnej/zverenej moci na súkromný prospech alebo v prospech skupiny. (Stapenhurst, Langseth, 1997).

Okrem korupcie sa stretávame aj s pojmami klientelizmus, rodinkárstvo (nepotizmus), state capture, lobing. Klientelizmus je výraz pre konflikt záujmov, ktorý vzniká uprednostňovaním, preferovaním priateľov a kolegov, spriaznených skupín. Existuje vzájomne posilňujúci vzťah medzi klientelizmom a korupciou, ktorý sa prejavuje kreatívnym spôsobom ako sa stratégie ovládnutia (*capture*) prispôsobujú zmeneným príležitostiam a obmedzeniam (Trantidis, Tsagkroni (2017). Rodinkárstvo znamená situáciu, v ktorej osoba využíva zverenú verejnú moc na získanie výhody pre člena svojej rodiny. Lobing je možné charakterizovať ako priame pôsobenie jednotlivca či záujmovej skupiny alebo jej reprezentanta na voleného predstaviteľa alebo zamestnanca verejného sektora, ktoré má za cieľ ovplyvniť výsledok legislatívneho alebo regulačného procesu a nepredstavuje stret záujmov ani korupciu. Na rozdiel od korupcie, znakom lobingu je, že ide o činnosť transparentnú, verejnú alebo verejne kontrolovateľnú. Prístup k ovplyvňovaniu by mali mať zabezpečené všetky dotknuté záujmové skupiny. Pri splnení uvedených podmienok lobbing možno vnímať pozitívne. Ovládnutie štátu/regulátora (state capture/regulatory capture) znamená, že rozhodnutia, regulácie, ktoré by mali byť robené vo verejnom záujme sú vychýlené v prospech konkrétnych subjektov. Môže mať rôzne podoby, napr. ovplyvnenie legislatívy, rozhodnutí regulátora.

Pri vysvetlení korupcie potrebujeme prepojiť individuálne správanie s inštitucionálnymi prvkami (Rose, Peiffer 2016). Na makro úrovni sa úplatky a korupcia skúmajú cez inštitúcie a procesy v celej spoločnosti. Pri správaní sa jednotlivca predpokladáme, že je určované podnetmi a obmedzeniami vnútenými národnými inštitúciami (Soreide and Rose-Ackerman, 2011). Na mikro úrovni úplatok je výmena medzi jednotlivcom, ktorý chce verejné služby, na ktoré nemá nárok a pracovníkom vo verejnom sektore, ktorý chce prospech z toho, že má právo a istú voľnosť v rozhodovaní pri ich poskytovaní. Úplatky zahŕňajú viacúrovňovú interakciu medzi verejnými inštitúciami poskytujúcimi služby a jednotlivcami, ktorí ich využívajú.

Dôležité je vysvetlenie okolnosti za ktorých sa dávajú úplatky, pričom existujú a rozdiely medzi krajinami ako aj rozdiely medzi jednotlivcami v rámci danej krajiny. Diskusie sa vedú aj o tom či morálne zvyky sú kultúrne univerzálne alebo kultúrne špecifické.[25]

Podľa Rose a Peiffer (2016) úplatky sa platia pri dvoch rozdielnych typoch vylučiteľných verejných statkov. Na mezo úrovni sú to úplatky, ktoré sa platia pri kontraktoch na infraštruktúrne projekty ako sú stavby mostov, letísk; získanie licencií a pod. V tomto prípade úplatky platia spoločnosti a prijímateľmi sú tiež inštitúcie, napr. politické strany, alebo skupiny, ktoré o kontraktoch rozhodujú. V týchto prípadoch je jednotlivec agentom inštitúcie v zmysle teórie agent-principal. Hovoríme o "*grand corruption*" veľkej korupcii. Jednou z foriem veľkej korupcie grand corruption je aj state capture. Na mikro úrovni vylučiteľné statky ako napr. zdravotná starostlivosť, vzdelávanie alebo sankcie ktoré udeľuje polícia sú poskytované priamo jednotlivcom, domácnostiam. Korupčná transakcia potom prebieha priamo medzi lekárom, policajtom a jednotlivcom. Hovoríme o "*petty corruption*."

[25] Pozri napr. Kravtsova, M.; Oshvhepkov, A.; Welzel, C. Valus and Corruption: Do Postmaterialists Justify Bribery? *Journal of Cross-Cultural Psychology*. Volume: 48, Issue 2. PP 225-242.

3. Výsledky a diskusia

3.1 Príčiny korupcie

Korupčný potenciál sa vytvára ak prospech z korumpovania prevažuje riziko odhalenia a sankcionovania. Je ovplyvnený formálnymi a neformálnymi pravidlami. Formálne pravidlá (zákony, normy, inštitúcie) môžu vytvárať korupčný potenciál ak niektorá oblasť nie je upravená, resp. je nedostatočne, nejasne upravená. Ale existencia pravidiel sama o sebe nepostačuje. Priestor na korupciu za znižuje, ak sú pravidlá uplatňované a ich porušovanie vymáhané a sankcionované. (Zemanovičová 2002).

Korupcia predstavuje transakciu, ktorá má dopytovú a ponukovú stránku, stretáva sa pri nej agent zastupujúci verejný sector s klientom (podnikateľmi, občanmi). Potenciál pre korupciu vzniká napr. pri nerovnováhe medzi ponukou a dopytom po verejných službách, pri reguláciách, voľnosti v rozhodovaní, ktorá umožňuje subjektívne vychýlenie rozhodnutí, pri nízkej transparentnosti a absencii zodpovednostných mechanizmov.

Ako uvádza Pardo (2017) korupcia sa nemusí spájať s málo rozvinutými krajinami, chudobou, slabým štátom. Jej dynamika zasahuje sociálnu, byrokratickú, politickú, ekonomickú a morálnu dimenziu. Hunady (2017) uvádza, že rule of law, efektívnosť vlády a skladanie účtov sú faktory, ktoré sú negatívne korelované s úrovňou korupcie v danej krajine.

3.2 Vplyv kultúry a neformálnych pravidiel

Okrem zákonov, inštitúcií konanie aktérov môže byť ovplyvnené aj morálkou, hodnotami, zvykmi, vzorcami správania sa – neformálnymi pravidlami.

Rozdiely vo výskyte korupcie medzi krajinami môžu byť vysvetlené modelmi koordinačného zlyhania, ktoré naznačujú, že korupciu je možné obmedziť iba silným tlakom v celej ekonomike. Ale korupcia je často udržiavaná ako organizačná kultúra a môže byť obmedzená cieleným úsilím v jednotlivých organizáciách. (Schneider, P. and Bose, G. 2017). Ak je rozšírené vnímanie, že pracovníci vo verejnej sfére prijímajú úplatky, môžu byť jednotlivci náchylnejší na ich poskytovanie. Ako uvádza Gunnar Myrdal (1968) ak sa každý zdá byť skorumpovaný, prečo ja by som nemal byť?

Podľa Rose a Peiffer (2016) v krajinách, ktoré si vytvárali skôr administratívny aparát, jednotlivci menej pravdepodobne dávajú úplatky ako v neskôr byrokratizovaných kolóniach a krajinách, ktoré majú skúsenosť so socialistickým systémom.

Viaceré skúseností zo zahraničia ukazujú, že korupcii sa darí menej v tých spoločnostiach, kde je fungujúca a aktívna občianska spoločnosť a mimovládne organizácie. Občianska spoločnosť poskytuje alternatívu aby tí, ktorí spravujú krajinu skladali účty (Mungiu-Pippidi, 2013). Ďalšiu poistku pre skladanie účtov môžu vytvárať média.

3.3 Dôsledky korupcie

Korupcia má dopad na mnohé oblasti, ako príklad uvedieme:

- *Vplyv na ekonomický rast, výkonnosť ekonomiky*

Viaceré výskumy (napr. Wei, 2001) ukazujú, že existuje záporná korelácia medzi rozšírením korupcie a ekonomickým rastom. Rovnako Širanová, Zemanovičová (2016) uvádzajú, že existuje korelácia medzi mierou vnímanej korupcie a rastom HDP, zahraničnými investíciami.

Empirické štúdie (napr. Kim at al., 2017) ukazujú, že interakcia medzi verejným dlhom a korupciou je významná, pričom potvrdzujú hypotézu, že efekt verejného dlhu na ekonomický rast je funkciou korupcie. V krajinách, ktoré sú vysoko transparentné verejný dlh zvyšuje ekonomický rast a naopak v krajinách s vysokou korupciou je tento efekt marginálny.

Korupcia má tendenciu zvyšovať rozsah verejných investícií, vplýva na štruktúru verejných výdavkov napr. od výdavkov na potrebnú údržbu v prospech nových investícií, vplýva na štruktúru výdavkov tým, že znižuje výdavky do takých oblastí ako sú zdravotníctvo, školstvo, kde sa ťažšie získava renta. Korupcia redukuje efektívnosť verejných investícií, znižuje daňovú výnosnosť. (Tanzi and Davoodi, 1997).

- *Deformovanie podmienok na podnikanie*

Pri rozhodovaní vo verejnom sektore pôsobí vzťah agent – principal, čo môže spôsobiť že na rozhodovanie majú silný vplyv súkromné motívy. To spôsobuje, že sa zdroje nealokujú optimálne, deformuje sa hospodárska súťaž. V korupčnom prostredí dochádza k neefektívnym transferom, zdroje sa sťahujú od efektívnych v prospech neefektívnych subjektov a aktivít. Deformujú sa motivácie podnikateľov, podnikatelia preferujú rent seeking nad profit seeking. To znamená, že sa nepodporujú najlepší, nepodporuje sa ich súťaž, nevytvárajú sa podmienky na ich rast. Fisman (1998) uvádza príklad Indonézie a firiem napojených na Suharna a jeho rodinu. Kapitálový trh oceňoval hodnotu týchto firiem podľa toho aké boli správy o zdravotnom stave Suharna.

Korupcia, netransparentnosť zvyšuje administratívnu náročnosť a transakčné náklady. Množstvo povolení, licencií, oprávnení a zložité procedúry pri ich získavaní na jednej strane vytvárajú prekážky pre podnikanie, na druhej strane vytvárajú priestor pre korupciu. Ak sú napr. pravidlá pre poskytovanie licencií, dotácií, štátnej pomoci, povolení, koncesií, príspevkov nejasné a ich rozsah je značný, to na jednej strane dáva voľnosť v rozhodovaní pre administratívu a na druhej strane vytvára neistotu pre podnikateľov, čo zhoršuje kvalitu podnikateľského prostredia. Navyše ak sú pravidlá nejasné, neistota vedie podnikateľov k tomu, že si chcú istotu získať úplatkami.

- *Vplyv na investície a projekty*

V korupčnom prostredí sa zvyšuje investičné riziko. Ak podnikatelia nemajú istotu či sa pravidlá, zákony, budú dodržiavať a vymáhať, resp. ak idú do prostredia, v ktorom je potrebné si dávaním úplatkov zabezpečiť vytvorenie či fungovanie podniku, zvyšuje sa pre nich riziko investovania v danej krajine. Napr. Wei (2001) na základe prieskumu dokázal, že miera korupcie je negatívne korelovaná s rozsahom zahraničných investícií.

Jain a kol. (2017) uvádzajú, že efekt korupcie na PZI je nelineárny, pričom krajiny ktoré sú vysoko transparentné, v ktorých sa rovnako zaobchádza s domácimi a zahraničnými investormi a informačná asymetria vo vzťahu ku korupcii je nízka, priťahujú zahraničných investorov. Veľmi skorumpované krajiny priťahujú viac zahraničných investorov ako stredne skorumpované krajiny pretože veľmi skorumpované podmienky môžu postaviť domácich a zahraničných investorov do rovnocenného postavenia z hľadiska riešenia problému informačnej asymetrie. Investori si želajú obchodovať na trhoch kde nemajú informačnú nevýhodu.

Locatelli; Mariani; Sainati a Greco (2017) popisujú "korupčný projektový kontext". Uvádzajú, že pri veľkých unikátnych projektoch, financovaných z verejných zdrojov sa v dôsledku korupcie zvyšujú náklady, posúva ich časová realizácia.

- *Neekonomické dôsledky*

Okrem uvedených ekonomických dôsledkov korupcia narúša dôveru občanov v štát a jeho inštitúcie, narúša dôveru v právo zákona, rovnosť pred zákonom a tým podkopáva dôveru v demokraciu ako takú.

4. Conclusion

Korupcia spôsobuje, že ekonomika nevyužíva svoj potenciál a teda občan dostáva menej ako by mohol pri danej úrovni zdrojov. Protikorupčné stratégie sú spravidla zamerané na oblast prevencie, represie a aktivizáciu občanov. Metodicky je vhodné využiť známy Klitgaardov vzorec korupcie:[26]

Korupcia = Monopol + Voľnosť v rozhodovaní – Transparentnosť.

Monopol sa chápe v širokom význame ako výhoda, exkluzivita, výrazná prevahu dopytu nad ponukou. Na rozdiel od kriteriálneho rozhodovania (kde existujú jasné krutéria, rozhodovacie postupy, odôvodnenia, preskúmania rozhodnutí) voľnosť v rozhodovaní znamená opak (neexistencia alebo nejednosznačnosť kritérií, rozhodovacíh postupov, neošetrenie konfliktu záujmov). Transparentnosť vo verejnom sektore, poskytovanie informácií, jednoducchá dostupnosť databáz je veľmi účinným a málo nákladným nástrojom na obmedzovanie korupcie. Tkachenko, Yakovlev, Kuznetsova (2017) na základe analýzy obstarávania cukru v Rusku v rokoch 2011 – 2013, uvádzajú, že pri netransparentných procesoch obstarávania dochádzalo k výraznému navyšovaniu cien. Zistili, že pri netransparentných postupoch dochádzalo k zvýšeniu cien najmä pri štátom vlastnených dodávateľoch v porovnaní sú súkromnými, najmä v prípade opakovaných kontraktov; zatiaľ čo pri e-aukciách dochádzalo iba k malým rozdielom medzi cenami štátnych a súkromných dodávateľov.

Ak je rozsah regulácií vysoký vytvára sa korupčný potenciál, najmä ak je to spojené s voľnosťou v rozhodovaní. Tanzi (1998) uvádza mnohé príklady, kde príležitosť na korupciu je spojená s nadmernou reguláciou. Napr. uvádza, že čím ťažšie je pochopiť daňové zákony, tým ľahšia je korupcia, pretože existuje väčšia voľnosť pre decízneho pracovníka. Kaufmann a Wei (1999) ukazujú, že existuje kladná korelácia medzi indexom korupcie a indexom vládnych regulácií. Ades a Di Tella (1997) ukazujú, že miera korupcie je vyššia v ekonomikách s aktívnejšou priemyselnou politikou. Svensson (1998) zase naznačuje, že niektoré krajiny, ktoré dostali štedrú zahraničnú pomoc majú tendenciu k vyššej miere korupcie.[27]

Aj keď existujú kritické reakcie na Klitgaardov vzorec, je vhodným a akceptovaným návodom pre tvorcov protikorupčných stratégií.

Niektoré štúdie, (napr. Hunady 2017) naznačujú, že pohlavie, vek a vzdelanie sú dôležité faktory, ktoré môžu mať vplyv na výskyt korupcie a uvádzajú, že by sa mali zvažovať pri antikorupčných programoch.

Ako sme uviedli korupcia má dopytovú a ponukovú stránku, preto protikorupčné stratégie musia byť zamerané na verejný sector, ale aj na podnikateľov. Dôležité sú aj postoje občanov a miera akceptácie korupcie.

[26] Klitgaard, R. (1988). *Controlling Corruption*. University of California Press.

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Korupcia musí byť riešená na národne ako aj nadnárodnej úrovni vo viacerých oblastiach – ekonomickej, právnej, politickej, administratívnej a morálnej.

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GLOBAL ANALYSIS OF THE PROBLEM OF AGING SOCIETY

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Abstract. The use of spatial methods in socio-economic analysis is becoming increasingly common among researchers and practitioners dealing with regional analyzes on a daily basis. These methods are applied in the study of phenomena in which the shaping influences localization and spatial interactions. These include among others demographic processes. Population aging is a global phenomenon today, affecting all regions and almost all countries in the world. However, this process goes on very uneven. Deepest in Europe, where the lowest birth rate has been observed since almost the beginning of the last century. The aging process is a multifaceted phenomenon affected by, inter alia, the demographic and spatial nature of individuals. The application of spatial analysis to investigate this process will allow to establish existing relationships between the studied regions with respect to this phenomenon. It will allow not only general but also individual characteristics of similarities and differences of regions. The main objective of this paper is to attempt to model the phenomenon of spatial aging of European Union society. In the analyses two spatial models were taken into consideration: the spatial error model and spatial lag model. The first part of the paper presents a theoretical description of the tools included in the spatial analysis, while in the second one the results of the research and the conclusions are presented. All calculations and maps were made in the statistical program R CRAN and Microsoft Excel. The data was obtained from the Eurostat database.

Keywords: population aging, spatial modelling, spatial autocorrelation of residuals

JEL Classification: C49, C51, J19

1. Introduction

The demographic changes observed in countries of the European Union clearly indicate the aging of the population, which the processes of fertility, mortality and migration have a huge impact. This phenomenon is a serious problem of demographic and socio-economic because it leads to many adverse consequences, ie. an increase in public expenditure, policy changes the functioning of social security, health and education, increased demand for care services, reducing pension benefits and social benefits, raising the retirement age, increase in unemployment, the mass migration.

The use of spatial methods in socio-economic analyzes is becoming increasingly popular among researchers and practitioners dealing with regional analyzes (Kopczewska, 2013). These methods are applied in the study of phenomena influenced by localization and spatial

interactions (e.g (Mastalerz-Kodzis & Pośpiech, 2016, A), (Mastalerz-Kodzis & Pośpiech, 2016, B), (Warzecha & Wojcik, 2015), (Wolny-Dominiak & Zeug-Żebro, 2012)). These also include demographic processes. The analysis of this process can therefore be used to determine the right course of change, for example related to pro-family policy.

The aim of the paper is to assess the need for spatial modeling and to identify and estimate the appropriate spatial model whose endogenous variables are the variables that characterize the aging process. In the analyses two spatial models were taken into consideration: the spatial error model and spatial lag model. All calculations and maps were made in the statistical program R CRAN (Bivand et al., 2008) and Microsoft Excel. The The data was obtained from the Eurostat database.

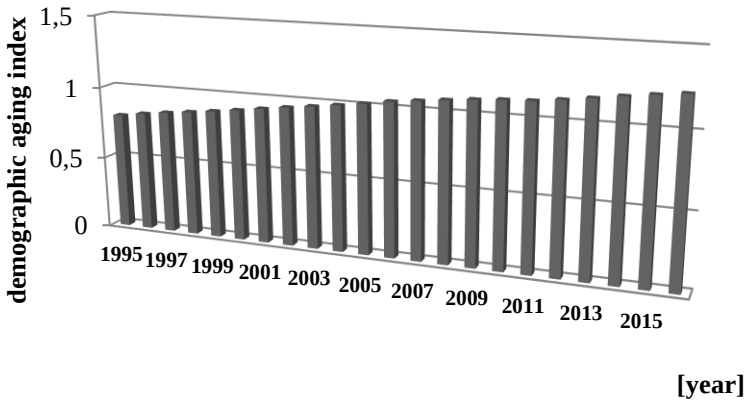
2. Analysis of aging process in the European Union

The aging of society, as a result of the prolongation of human life, labor migration and the declining birth rate, fundamentally alter the structure of the population. The pace of change of relation of the number of people in the post-working age (65+) to the number of people in the pre-working age (0 -15) is growing faster. The aging population is one of the most important economic problems not only in Europe, but also in the world. However, this process goes on very uneven. Deepest in Europe, where the lowest birth rate has been observed since almost the beginning of the last century (Zeug-Żebro & Miśkiewicz-Nawrocka, 2017). As a consequence, Europe is demographically the oldest continent. The aging of the European Union's population is due to three main trends:

- a constant increase in life expectancy, as a result of improving the health and quality of life of the people of the European Union,
- continuous population growth over the age of 60,
- the low rate of natural increase (the total fertility rate in most European countries is lower than the coefficient of simple substitution of generations).

The degree of advancement of the aging population of the European Union in recent years shows changes in the value of selected demographic indicators:

Figure 1: Demographic aging index in the European Union in 1995 - 2016



Source: own elaboration

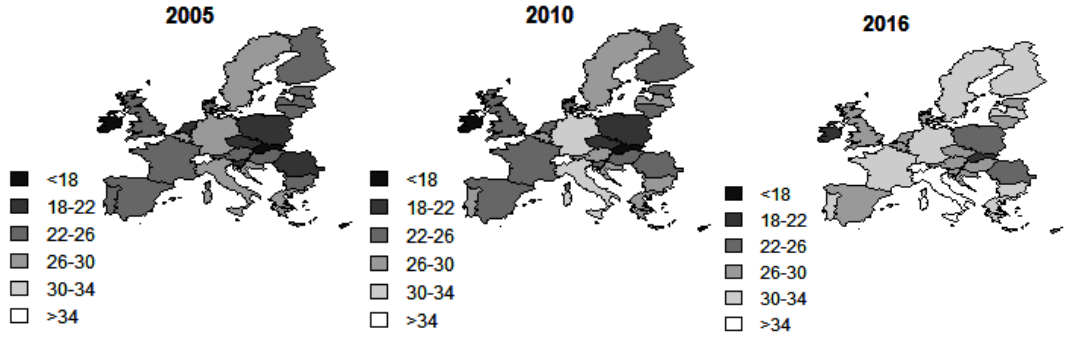
- the demographic aging index[28] in 1995 was only 79.92% and in 2016 it reached 122.95% and is still growing (Fig. 1);

[28] The demographic aging index is the ratio of the number of elderly people (65+) to the number of children (0-14 years) in the same population.

- the median age of the population increased from 36.5 in 1995 to 39.9 in 2016;
- the old-age dependency ratio (OADR) has risen from 21.9 people in post-working age per 100 people in working age in 1995 to 29.3 in 2016.

Graphical presentation of the old-age dependency ratio (Fig. 2) allows the countries with the highest and lowest values of this measure to be distinguished. In 2005 the highest value of this measure (in the range of 26-30) was observed in 6 countries: Germany, Greece, Croatia, Italy, Belgium and Sweden, while the lowest value of OADR (<18) Cyprus, Ireland and Slovakia. In subsequent years, the value of this index increased and in 2016 its highest value was recorded in Italy, while the lowest in Ireland, Luxembourg and Slovakia.

Figure 2: Old-age dependency ratio in countries of the European Union in 2005, 2010 and 2016



Source: own elaboration

3. Spatial modeling

Spatial modeling has become an important research area when the first law of geography was formulated by W. Tobler in 1970 (Tobler, 1970), which says that everything is related, but near objects are more related than distant ones. The construction of the spatial model is aimed at improving the quality of the econometric model. Inclusion of spatial relationships within a given area as well as within neighboring areas can have a positive influence on the translation of the variability of the features under consideration. The following basic groups of spatial models are distinguished: spatial lag models, spatial error models, cross-regression models and mixed variants. In paper the first two models were considered.

3.1 Spatial lag model

The spatial lag model includes the spatially delayed endogenous variable **W***y*, ie it is an autoregressive model (the basis of the model is spatial dependence). The general form of this model is described by formula:

$$y = \mathbf{\beta X} + \alpha \mathbf{W} y + \varepsilon, \qquad \varepsilon \sim N\left(0, \sigma^2 I\right) \tag{1}$$

where: α – spatial autocorrelation coefficient, **W**– spatial weight matrix, $\mathbf{\beta}$ – vector of model coefficients, **X**– matrix of exogenous variables, ε – model error.

The model tests if $\alpha = 0$ ie the significance of the dependent variable which is spatially delayed. Spatial delay **W***y* is interpreted as the level of the dependent variable *y* in neighboring regions. If this is significant, then the level of *y* in the *i*-th region can be explained by the level of the phenomena in the neighborhood and other factors represented by the remaining explanatory variables.

3.2 Spatial error model

The spatial error model contains spatially delayed error. This model assumes the spatial autocorrelation of the rest of the model. The general form of the model is given by the formula:

$$y = \mathbf{\beta X} + \varepsilon \tag{2}$$

where:

$$\varepsilon = \mu \mathbf{W} \varepsilon + \varphi, \qquad \varphi \sim N\left(0, \sigma^2 I\right) \tag{3}$$

μ – spatial autocorrelation coefficient, other signs as above.

$\mathbf{W}\varepsilon$ is a spatially delayed error, which should be interpreted as the average error from neighboring locations, and φ is an independent error of the model. In the model we test whether $\mu = 0$ ie lack of spatial autocorrelation.

3.3 Stages of spatial model selection

There are different ways to select and specify the model that best describes the issue. One of them is a simple procedure for choosing a spatial regression model, which follows the algorithm (Anselin, 2006), (Suchecki (ed.), 2010), (Kopczewska, 2011):

1. Estimation of linear model by the classical least squares method (CLS).
2. Study of spatial autocorrelation of model residues (Anselin & Rey, 1991)- at this stage the Moran test (Moran, 1950) is used for residues, which takes the form:

$$I = \frac{n}{S_0} \cdot \frac{\mathbf{u}^{\mathrm{T}} \mathbf{W} \mathbf{u}}{\mathbf{u}^{\mathrm{T}} \mathbf{u}} \tag{4}$$

where: n – number of regions, $\mathbf{u}$– column vector of residual from the CLS model, S_0 – sum of elements of the weights matrix, $S_0 = \sum_{i=1}^{n} \sum_{j=1}^{n} w_{ij}$, $\mathbf{W}$ – spatial weight matrix degree n, defining the structure of the neighborhood, w_{ij} – element of the weights matrix $\mathbf{W}$.

This test verifies the following hypotheses: H_0: no spatial autocorrelation of residues, H_1: occurrence of spatial autocorrelation of residues.

The occurrence of autocorrelation of residuals does not necessarily use the need for spatial models, and residuals of the model (model estimated on the logarithms of variables) can then be analyzed (Cliff and Ord, 1970).

3. Carry out LM tests (Lagrange Multiplier) to specify a spatial model that better describes the phenomenon (Anselin et al., 1996) - these tests are based on the CLS model residuals. Two basic LM tests are LMerror and LMlag. The LMerror test tests the spatial dependence of the error, and the LMlag tests significance of dependent variable which is spatially delayed. LMerror with asymptotic distribution $\chi^2(1)$ takes the form:

$$LM_{ERROR} = \frac{1}{T_1} \left(\frac{\mathbf{u}^T \mathbf{W} \mathbf{u}}{\hat{\sigma}^2} \right)^2 \tag{5}$$

where:

$\hat{\sigma}$ – estimated standard error,

$$T_1 = \mathrm{tr}[(\mathbf{W}^{\mathrm{T}} + \mathbf{W})\mathbf{W}] \tag{6}$$

other signs as above.

Using the above statistic, significance of the coefficient μ is verified.

LMlag with asymptotic distribution $\chi^2(1)$ takes the form:

$$LM_{LAG} = \frac{1}{T_2}\left(\frac{\mathbf{u}^T\mathbf{W}\mathbf{y}}{\hat{\sigma}^2}\right)^2 \tag{7}$$

where:

$$T_2 = T_1 + \frac{(\mathbf{W}\mathbf{X}\hat{\boldsymbol{\beta}})^T\mathbf{M}(\mathbf{W}\mathbf{X}\hat{\boldsymbol{\beta}})}{\hat{\sigma}^2} \tag{8}$$

$$\mathbf{M} = \mathbf{I} - \mathbf{X}(\mathbf{X}^T\mathbf{X})^{-1}\mathbf{X}^T \tag{9}$$

$\hat{\beta}$ – estimated vector of the coefficients, other signs as above.

Using the above statistic, significance of the coefficient α is verified.

The choice of spatial model (by hybrid strategy) is determined by the higher (significant) value of the LM statistics (if LMlag> LMerror, then the spatial lag model is determined, otherwise the spatial error model).

4. Carry out additional diagnostic tests: LR test and Wald test and compare the statistic values of these tests with the LM statistic values. Then for:
   - the spatial error model: Wald(μ) ≥ LRerror ≥ LMerror,
   - the spatial lag model: Wald(α) ≥ LRlag ≥ LMlag.

4. Empirical analysis

The study covered the regions of the European Union (NUTS1). The analysis included data for the years 2005, 2010 and 2015. The dependent variable characterizing the aging population was the number of people in the post-working age (NP65+), and as explanatory variables were chosen: live births (LB), fertility indicators (FI), deaths (D), infant mortality (IM), gross domestic product (GDP), Employment (E). The data used in the analysis comes from the Eurostat database. All calculations and maps were made in the statistical program R CRAN and Microsoft Excel.

In the first step of the study, an estimation of linear econometric models was made, which were compiled for the years 2005, 2010 and 2015. Table 1 shows the results of the estimation of econometric models (the insignificant parameter is denoted by the (*) symbol) together with R-squared.

Table 1: Results of estimation of econometric models

Variables	Value of coefficients		
	Model (2005)	Model (2010)	Model (2015)
Intercept	56910*	9796.900*	-170300*
LB	1.782*	2.347	5.71
FI	-68730*	-21932.817*	90140*
D	18.940	19.499	20.88
IM	-501.600	-885.183	-1412
GDP	1.476	1.529	1.147
E	-92.510	-86.168	-138.300
R^2	0.977	0.982	0.984

Source: own elaboration

In all models, the FI variable was insignificant; in addition, the LB variable was insignificant in 2005. The coefficient of determination of all models are at a very high level, the matching of the models is therefore very good. In the next step of analysis, spatial autocorrelation of errors was studied. Results are presented in Table 2.

Table 2: Moran statistics I for the residuals of the model

Model (2005)		Model (2010)		Model (2015)	
I	*p*-value	*I*	*p*-value	*I*	*p*-value
0.299	$1.59 \cdot 10^{-5}$	0.335	$1.83 \cdot 10^{-6}$	0.299	$1.61 \cdot 10^{-5}$

Source: own elaboration

For all estimated models Moran *I* statistic are statistically significant, which suggests the existence of spatial autocorrelation (the residuals of model are not randomly distributed, depending on the location).

In the next step of the study, LM tests were performed for each model to investigate the existence of spatial relationships in linear models. The results of this analysis (indicating which spatial models would be more appropriate) are contained in Table 3.

Table 3: Recommended spatial model

Model	LM tests				Type of spatial model
	LMerror	*p*-value	LMlag	*p*-value	
Model (2005)	13.526	$2.35 \cdot 10^{-4}$	13.212	$2.78 \cdot 10^{-4}$	spatial error model
Model (2010)	16.912	$3.92 \cdot 10^{-5}$	8.548	$3.46 \cdot 10^{-3}$	spatial error model
Model (2015)	13.498	$2.39 \cdot 10^{-4}$	6.985	$8.22 \cdot 10^{-3}$	spatial error model

Source: own elaboration

The above results suggest that for all models, it is best to build spatial error models. In addition, Table 4 shows the values of the information criteria: the Akaike (AIC), Bayesian (BIC), and logLik, to compare the model estimated by CLS with the spatial models (SEM - spatial error model, SLM - spatial lag model). The best model is the one for which the AIC and BIC criteria take the lowest values, while the logLik criterion assumes the highest values.

Table 4: Values of the information criteria

Model		Values of criteria		
		AIC	BIC	logLik
2005	SLM	2394.543	2417.433	-1188.272
	SEM	**2380.480**	**2403.370**	**-1181.240**
	CLS	2406.120	2426.466	-1195.060
2010	SLM	2390.101	2412.990	-1186.050
	SEM	**2369.639**	**2392.528**	**-1175.819**
	CLS	2396.763	2417.110	-1190.382
2015	SLM	2392.333	2415.223	-1187.167
	SEM	**2359.295**	**2382.185**	**-1170.648**
	CLS	2397.416	2417.762	-1190.708

Source: own elaboration

The values of the information criteria for all models (2005, 2010 and 2015) clearly indicate the spatial error model. For each model a suggested spatial model has been built; the results of the estimation are given in Table 5 ((*) means statistically insignificant parameter). In all models the spatial factor μ was significant.

Table 5: Results of estimation of spatial error models

Variables	Value of coefficients		
	Model (2005)	Model (2010)	Model (2015)

Intercept	42414*	37196*	-2928.494*
LB	-1.825*	-0.649*	0.871*
FI	-28954*	-20641*	22764.779*
D	18.435	19.219	17.535
IM	-139.420*	-404.050	-641.806
GDP	1.192	1.2363	0.541
E	-32.682*	-43.616*	15.699*
μ	0.746	0.735	0.817

Source: own elaboration

According to all criteria of information, spatial error models are definitely better than linear models. In addition, the space model built for 2015 is the best.

5. Conclusion

Research has shown that it is legitimate to use spatial modeling in some cases. Three models were built using the CLS method. The endogenous variable in these models was the number of people in the post-working age (in years 2005, 2010 and 2015). These models were characterized by spatial autocorrelation. This situation prompted to study of possibilities of estimating spatial models by LM tests. For all models spatial error models have been recommended. The good specification of spatial models is confirmed by the values of relevant statistics.

Studies have shown that spatial modeling for the discussed issues is justified. However, it is necessary to deepen the research by making more accurate identification of models and taking into account other neighbourhood matrices. Nevertheless, subsequent studies show the importance of implementation in the analysis of socio-economic spatial methods.

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WORLD TENDENCIES OF GLOBALIZATION AND SPECIFICS OF NATIONAL ECONOMIC DEVELOPMENT

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Abstract. Article is devoted to the analysis of prospects of globalization processes in the context of their impact on national economy from the point of view of the available institutional environment created for a long time. In historical aspect the formation of bases and prospects of a modern world order is considered. This process laid the foundation of that globalization which, having begun in the field of geography with opening and development of new territories extended also on the sphere of economy, policy and culture very soon. In the modern world globalization is a fundamental tendency of development of world economy with which all states need to reckon, regardless of their place in these globalization processes and the attitudes towards them. In article positive and negative lines and features of globalization processes which find the expression in all spheres of human activity are estimated. These features are expressed in expansion of interdependence between the states, in formation of world information space, the world markets of the capitals, goods and labor, in an aggravation of world environmental problems, in complication of political interrelations and cultural influences. Also problems of Russia at the present stage of development of globalization processes are considered taking into account a world geopolitical situation. After an aggravation of an economic and political situation, introduction by the West of the mode of sanctions and the Russian response program of "import substitution", especially sharply there was a problem of finding of own way of development, taking into account the civilization features.

Keywords: Institutional features, Modernization, Globalization, Informal institutions of society

JEL Classification: F60, F61, O21

1. Introduction

Each nation has its own cultural, religious, mental and other characteristics that determine the specificity of its economic development, regardless of whether it has its own state or not. The principle of national ownership of households is based on their purpose: the benefit of one nation state or another.

The end of the twentieth century was marked by cardinal changes in the world balance of forces, by the change in the familiar world order, by the formation of a new model of the world order.

It is common to call an important objective process of modern world development - globalization. This is a qualitatively definite stage of the unfolding of the tendency to strengthen the interconnectedness and interdependence of countries from one another. In the 90's they began to actively speak about the phenomenon of globalization. At the same time, the most acute scientific discussion unfolded regarding the definition of the moment of appearance of the globalization processes, its connection and unified nature with modernization (Neumann, 2015).

A clear and unambiguous definition of the concept of "globalization" has not yet been formulated. There are different definitions of globalization, which reflect the complexity and ambiguity of this phenomenon. Globalization can be viewed from the institutional and civilizational positions as a process of interaction and interpenetration of various civilizations that have developed in more or less stable territorial borders on the basis of certain ethnic groups. Globalization is also proposed to be viewed as an ever-growing mutual socio-political dependence of states (Dengov et al., 2016). Under globalization, we understand the new stage of the world development, characterized by the appearance of vast areas of common interests.

2. Economic development and modernization of the national economy

Economic globalization as "accumulation of structural shifts and gradual formation of a distinct world economy" is not an "invention" of the late XXth century (Mikulskiy, 2003).

We can talk about different periods of modernization / globalization, referring to the process of penetration and development of remote continents by Europeans. The appearance of the first signs of globalization was due to both the course of historical development and the rational type of thinking of that era.

The discovery of America, and then the first round-the-world journey of Magellan laid the foundation for that globalization, which having started with the discovery and development of new territories, i.e., in the field of geography, very soon embraced the sphere of economy, politics, and culture.

First and foremost, it is more correct to view globalization as an objective historical process, as a reality, in which the general laws of the development of human society are reflected.

However, in modern reality, globalization manifests itself in two incarnations.

First, as the global leadership of one state, as the process of the formation of a system of global domination over the world periphery and its management by the highly developed part of the world community under the auspices of the global manager - the USA.

Second, globalization is an objective process of the development of human civilization, carrying, from a subjective point of view, both good and evil. How objective this process is, what consequences - negative or positive - every state and every inhabitant of the Earth can expect from it, remain debatable issues.

In the beginning, when the prospects for the unity of the world seemed attractive, the positive aspects of globalization were underlined as a natural continuation of modernization and evolutionism in general. Globalization meant the strengthening of interrelations and interdependence, the widespread penetration of the West into all spheres of life in all corners of the world. Economic arguments played an important role: "Globalization is good, because it is good for the economy, and if it is good for the economy, it is good for everything and

everyone else. States, with their desire to control all areas of human activity, are harmful to the economy, and globalization allows us to overcome the barriers imposed by state borders" (Beck, 2001).

On one side, globalization is the rapprochement and strengthening of the interrelations and mutual influence of nations and states due to the development of communication systems, the transfer of information, the improvement of transport.

The positive aspects of the globalization process include the benefits of the international division of labor, the increasing exchange of technological innovations, the high mobility of capital and labor, the expansion of commodity markets, the deepening of political, economic, cultural ties between nations and states, the development of communication systems, the transfer of information, the improvement of transport (Butek , 2015).

In the process of globalization, they began to see more negative manifestations, when it came to understanding, that modern globalization manifests itself mainly in its first incarnation. This is the process of imposing a single standard in all areas of the world community life, establishment of a single world order, a single world religion, creation of a unified social and economic system, and creation of supranational structures (such as the World Trade Organization), designed to ensure the free exchange of goods (Harumova, 2015).

But the free exchange of goods can only be fair if it is carried out between more or less equal partners. If there is a significant inequality between partners, such exchange creates injustice and hinders the establishment of justice in the world (Kormanova, 2015). Is it possible to speak about justice and freedom with existing misbalance of forces in a world where the military budget of just one country, the United States, exceeds the united military budgets of European countries?

Modern globalization is the imposition of a single American standard in all areas of the life of the world community: "... what is commonly called globalization is in reality just another name for the dominant role of the United States". (From a lecture delivered by Henry Kissinger on October 12, 1999 at Trinity College (Dublin, Ireland)) (McBride, 2003).

The essence of this kind of globalization is the American imperial "open door" policy aimed at conquering the markets of other countries, carried out in a "soft" way - penetration and submission of the economies of other countries, or by force.

Globalization, in which the United States is leading, is uneven. It throws some countries back, while providing advantages to others.

"In order for the West to push the limits of growth, expanding the resource base of its technical, consumer civilization, it is necessary that other countries and civilizations open their resources to it. Hence the concept of a global "open society" and an "open economy" where national state borders are declared obsolete, and attempts to protect local economies from international predatism are assessed as manifestations of aggressive nationalism and traditionalism that must be stopped and punished" (Panarin, 2003).

Globalization can be viewed as the next stage, a component of the modernization, not always and not for all desirable and useful, but necessary for the development of society, as the process of liberalization of national economies, political systems, mastering the Western way of life (Madr & Kouba, 2015).

In addition, globalization means, and this fact must be accepted as inevitable, that now everything that happens on the planet does not boil down to a locally limited event, but concerns practically the entire world. (Grechenyuk, Grechenyuk, Polyanin, 2016).

Globalization is first and foremost an objective historical process, the next stage of the modernization process, the leading force of which is the European-North American civilization, and, as in the 17th-19th centuries, when for survival the countries were forced to move in their development towards modernization, at the beginning of the 21st century, individual countries and nations practically have no choice - to participate or not to participate in globalization. They are doomed to such participation by the natural course of events. Globalization as a natural continuation of modernization is a reality in which the unified nature of human society and the general patterns of its evolution are reflected from different sides (Ermolaev & Salomatina, 2016). Being a natural process, globalization in itself is neither bad nor good, but it affects different nations differently.

American economist and politician Patrick Buchanan identifies four costs of the globalization process (Buchanan, 2001).

The first cost is the deepening of the division into the rich and the poor, both countries and individuals. The problem is the increasingly noticeable gap between the active minority (elite) and the rest of the population of the planet, which cannot or does not want to participate in the accelerating race of technological and economic competition.

The second cost is the loss of independence and national sovereignty. Countries cease to be self-sufficient.

The third cost (for economically developed countries) is deindustrialization and denationalization of industry, which resulted in the transfer of capital to states with cheap labor, and in the inability of workers in economically developed countries to compete with workers coming from developing countries. Producers are looking for the low pay benefits, and workers strive to find higher earnings.

The fourth cost is the country's vulnerability to financial crises, the causes of which are beyond control. In the global economy, the whole world is always one step away from the catastrophe. As a result of the developing process of globalization, all countries suffer, regardless of their economic situation.

To soften the aforementioned negative consequences of globalization, one can select an alternative development project - economic nationalism. That is, the all-round development of national economies, which must stand in stiff opposition to the free market, so as not to lose sovereignty and not be dependent on transnational corporations. (Korostyshevskaya & Urazgaliev, 2016).

The central link of globalization is the economy, the development of which is inextricably intertwined with the existence of national informal institutions.

The impact on culture serves to change the national mentality, without which it is impossible to achieve the goal of globalization - the establishment of a single world order.

"By their nature, people are close to each other and by their habits they are far from each other" (Confucius, 2005).

Modern globalization is primarily manifested in the economic sphere. With this manifestation, the formation of a planetary information space is directly connected, which

ensures the uniformity of the elements of a material civilization, leads to the unification of the world's pictures and images of their reflection in a culture traditionally typical to one or another nation (Flier, 2006).

Culture in conjunction with the genotype forms a national mentality, including the economic mentality that determines the model of economic development of the nation. This provision gives the right to conclude that globalization leads to a vicious circle of development, in which a consumer is generated, consuming what is beneficial to transnational corporations, regardless of what they produce - weapons, popcorn or drugs.

Austrian biologist and philosopher, Nobel laureate Conrad Lorenz (1903-1989), isolates the "eight deadly sins of a civilized humankind", threatening not only our present culture, but all humankind as species. One of them (the sixth) is a break with tradition. This break comes when the younger generation no longer succeeds in reaching an understanding with the elder, not to mention the cultural identification with them. The seventh sin is the increasing indoctrinability of the humankind, that is, the unification of views. The probing of public opinion with the help of advertising techniques and skillfully guided fashion helps those who want, by destroying individuality, to manipulate large masses of people, holding them in their power (Panarin, 2003).

Any model of development of the national economy not only represents a unique combination of internal and external factors determined by national or geopolitical features, but also has specific characteristics relating to different historical stages and associated with the basic conditions in each of them. Therefore, in the process of any reforms, the key issue is the question of the conformity of the chosen model of economic development and the corresponding institutions to the traditional national institutional forms developed over the centuries, among which the national mentality is the main. That is, this is a question of the correlation of the traditions of society with the processes of renewal (Altunyan & Kotsofana, 2016).

The goal of globalization is the creation of a single social and economic system governed by a single center, which determines the establishment of a single world order, the rejection of the national identity in the economy, culture, politics and, consequently, the destruction of the necessity of the existence of national states. And, at the same time, it is the imposition of a single American standard - a way of thinking, a type of behavior based on economic profits and benefits in all areas of the world community life. (Kirillovskaya et al., 2016).

To fulfill this goal, it is necessary to change the traditional system of values: "to fulfill cosmopolization and de-individualization of the mankind, to destroy national and cultural identity, to weaken the role of national languages, to destroy basic values" (Dudenkov, 2007).

Thus, globalization as rapprochement and strengthening of interrelations and mutual influence of nations and states is a process that is inevitable and, to some extent, useful. But the reality is that for a positive result, you have to pay a certain price - economic, social, cultural.

In the real world there should be national economies interacting with each other. In individual national economies critical decisions must be made on the basis of what is best for the nation, but what does not harm other states.

3. Conclusion

There are two notions of "globalism": the first is a natural process, with all, if not positive, then inevitable qualities that one should strive to direct to the benefit of all humankind, but which will be implemented by each state for the benefit of their economy, culture, geopolitics. The second - the continuation of modernization - Westernization in the worst case.

Thus, globalization, as the stage of modernization, is a natural and inevitable process, but again, as well as modernization, proceeding in different ways, depending on the choice of each individual country.

It is important to find the right tactics for adapting the national economy to the process of globalization.

The primary task for Russia at the present stage is to preserve and strengthen a worthy place in the system of world economy. The solution became an urgent problem after the introduction of the sanctions regime and the aggravation of the international situation in 2014. Achievement of success in this situation is possible only in case of continuity of traditions of own economic culture, borrowing and mastering of foreign culture in the conditions of selection and assimilation, economic renewal and introduction of innovations in accordance with the progressive course of social development.

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MODELING OF BUSINESS PROCESSES IN THE GLOBAL TRANSPORT SYSTEMS ON THE BASE DIGITAL RAILWAY

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Abstract. This article describes the digitization sequence for the transportation of cargoes in exit routes and the results of mathematical modelling of the rail cargo traffic distribution under rising interspecific competition. This document supports the implementation of digital formats in Russian railways as a segment of global transport systems. The methodology of researching the technological processes of freight transportation of global transport systems is based on two models: the model of factor analysis, which describes the technical and economic characteristics of the transportation process; and dynamic modeling of the parameters of the factors' significant weights affecting the transportation process. The information base is provided by qualitative and quantitative assessments of signs of actual performance of freight transportation by volume and addresses, by time, speed, intensity and cost parameters. The obtained model ensures the traceability of cargo traffic data in the exit routes. A mathematical description of the process enables us to trace the status of the timing, speed and cost parameters of actual freight transportation at any desired time, to identify and duly address the risks posed by interactions with interfacing transportation entities and traffic. The modelling results provide for the identification of a double effect of the freight transportation digitization in exit routes – the growth of transporters' revenues and the growth of consignors' marginal profits due to a reduction of transport costs in the global transportation services.

Keywords: Digital Railways, digital formats in the operational activities, traffic flow, exit routes

JEL Classification: F60, F61, R40

1. Introduction

An effective economy, which is mainly characterized by sustainable growth, demands a relevant transportation system that is capable of generating a ramping-up at the level of the infrastructure. In return, the national transportation systems, being part of the global transport infrastructure and meeting the requirements of this in terms of speed, intensity and quality of transportation, in turn start generating innovative changes.

The development of a digital (intelligent) railway technology, as part of the context of the general global economy, confirms the above statement. An analysis of the literature defining the strategic outlook of the technological developments in rail transport around the world shows that the key trends of this transportation system boil down to the creation of an intelligent railway (Railway Handbook, 2014).

The concept of the development of intelligent transportation systems in Russia was worked out in 2015, where the basic ideas are focused on the evolution of self-driving vehicles, which match the "Smart Railway" and "Intelligent Transport Systems" concepts that are becoming widespread around the world. The digital economy, and the digital railway as one of its components, has become the subject of studies in various science and business fields. IT systems, touch-free movement technologies, emergency and train scheduling systems (ETCS), radio communications systems (GSM-R), and mass data processing, etc., are at the forefront of these studies.

An analysis of the results of research conducted on digital railways allows us to identify a major challenge – securing the speed gain for both passenger and cargo transportation. At the same time, the economic descriptions of an "intelligent" railway system, primarily with respect to its ability to provide revenue and optimize the costs of transportation, have been discussed fragmentarily. Moreover, there is so far no clear understanding of the technique that can be used for an economic assessment of the transportation speed.

In this context, the purpose of this paper is to build up a business process transformation model for cargo transportation in exit routes, considering the changes in market behavior and in the behavior of the consumers of transportation services. Through this process, we have to come across a double effect of the digital railway operations – the growth of transporters' revenues and the growth of consignors' marginal profits due to the reduction of the transport costs in the overall transportation services.

The results of the mathematical description and the modeling of cargo transportation in exit routes mentioned in this article can be represented as a part of the general railway digitization process.

2. Historiography and Discussion

The history of the conceptual development of the digital economy and digital railways extends back just over a decade. Its basic architecture was created in Great Britain, as is referred to in a number of articles which also note that the current technologies are fully available and sufficient to build a digital railway (Tech Nations, 2016).

In Europe, the road maps of the digital economy have been adopted and are being implemented on the basis of the Regulation on the European Parliament and of the Council on electronic identification and trust services for electronic transactions in the internal market (project - eIDAS) (Trust Services and eID, 2015). Digital Economy as a result of the transformational effects of new general-purpose technologies in the field of information and communication in the EU countries is presented in detail in the regular Digital Economy Outlook. They also provide options for using the potential of the digital economy as a driving factor for innovation and inclusive growth, including transport systems (OECD Digital Economy Outlook, 2015)

The technological and economic aspects of railway digitization are topics of discussion among international organizations and forums. They are being widely investigated by work teams studying the EAEU digital domain (ERTMS, 2016) The creation of a digital railway has been considered in several scientific research papers.

The technological basis of the modern globalization includes the latest accomplishments of the third technological revolution: telecommunication systems, the scientific revolution, new forms of transport are investigated in the work of Hamed, et al. (2009). Yokota et al. (2004)

are considering the tools for creating self-regulating transport systems in developing economies are being investigated by the World Bank and the Ministry of Land of Japan. Guidelines for planning the development of digital transport and decision-making processes for their implementation are discussed.

Complex problems of creation of intelligent transport systems are considered in Grabaurov's paper (2015). It provides the concept of self-regulating transport systems that provide traffic safety, growing of speed, improvement of ecology, comfort. As an information basis of the concept, a digital map is considered that provides real-time operational data on transportation (Kral & Janoskova, 2015). The process of digitalization of transit transport systems is described, which, for example, as Belarus. The problems of the development of digital transport systems in the global digital economy described in work "Globalization, e-economy and trade" (Capineri & Leinbach, 2004) namely, the impact of electronic communications, new interpretations of access and distances in physical and vertex spaces, intermodal logistic systems, significantly change the description of transport systems as such. The continuation of this discussion is work of Lobo & Whyte (2017), representing a description of integrated projects of digital infrastructures of cars and railways. In particular, estimates are given for the set-up of digital delivery and the adaptation of the time setting, taking into account the coordination of digital systems of different modes of transport. In general, the problems of transport optimization based on effective mobilization of transport resources are touched upon.

In relation to the Russian Federation, the forecast of trends in the digitalization of urban vehicles is discussed, based on the hypothesis of catch-up development, in particular on the basis of models of digital transport systems and unmanned vehicles (Blinkin & Zalesskiy, 2016). Similar empirical studies of the diffusion of smart initiatives aimed at studying the correlation of domains of transport systems and smart cities are given in paper of Neirotti et al. (2014). Reflections of regional discussions on the development of digital railways, the digital railway model and its components are described in the work in particular in Germany, are presented in the paper of Weik et al. (2016). Data models or process models as a platform for digital transformations have evolved a long time ago. With regard to the development of the mathematic modeling of railway business processes as a basis for their digitization, we can name the following papers that justify the use of: Deterministic traffic equilibrium models, Stochastic traffic equilibrium models and Dynamic traffic models. (Nagurney, 2007)

For the purpose of our article we will identify the most critical lines of research, according to our estimation.The questions of evaluation of approaches to the digital measurement of the ratio of the cost of time and investment costs to the development of transport systems are discussed in the article "The digital revolution and worthwhile use of travel time: implications for appraisal and forecasting" (Wardman & Lyons, 2016).

The study of the influence of digital technologies on the spatial efficiency of the transport system, the creation of new forms of spatial interaction was conducted in a study of Kourtit (2016). He also introduced the concept of digital "super-proximity". The concept of servicing digital transport systems based on the remote support model, for example, quasi-technologies, was proposed in Tavare's and Szpytko's study (2016). The description of the Stochastic model the train scheduling includes a comprehensive analysis, and the use of its results in long-term transport planning are given in the paper by N. Weik et al. (Weik et al., 2016).

Furthermore, the issues surrounding the modeling of rail cargo traffic distribution under the competition between separate network components and aimed at obtaining cargo traffic

are studied by D.N. Kozachenko and B.V. Gera et al. (Kozachenko et al., 2016). In their study, they solve this problem using the theory of graphs and games theory methods. The results in the paper (Sneps-Sneppe, 2016) contain a solution for the automatic routing of cargo paths on a selected single-pass line. The approach to the creation of a multi-agent method for adaptive real-time train scheduling, developed by A.A. Niias within the framework of building a Uniform Intelligent Rail Transport Control System, is also of great interest (Belousov et al., 2015). Cost estimate procedures for cargo traffic scenarios on moving cargo trains and at railway stations, with the use of operation modeling, are described by M. Schneider and N. Nießen (Schneider & Nießen, 2016)

Finally, among the fundamental work on transport modeling, the research conducted by Anna Nagurney and John F. Smith is worth mentioning [University of Massachusetts, Amherst, Massachusetts USA[29]]. Of particular relevance is their description of different traffic flow models and their consolidation technology (Nagurney, 2007).

3. Methods of the mathematical description of freight traffic processes

In order to provide a formal estimate of the current status of rail transport operations we suggest using the conventional factor analysis tool, which allows us to estimate the influence of each factor on the losses of infrastructure resources, the rolling stock and the overall cost of the freight rail transport, as well as to create a model describing the technical and economic features of the transportation process. The next step was the dynamic modeling of the essential factors affecting the transportation process. A qualitative and quantitative assessment of the evidence of the actual performance of freight transportation in terms of the volume, addresses, timing, speed, intensity and cost parameters was conducted at this stage.

A step-by-step description and modeling of the technological business processes includes the following stages:

- Transportation in the freight train operations of various categories;
- Delays at intermediate stations in the freight train operation of various categories;
- Transit operations at train stations in the freight train operation of various categories;
- Freight handling at the train stations;
- Local work (terminal operations).

At each of these stages, it was necessary to calculate the transportation costs "as is", i.e. with respect to the existing method of car traffic management and the blocking of trains/routes of the corresponding categories. Any change to the existing car traffic management method would allow us to estimate the efficiency of this change in the "amended" situation. The depth and particularization of the railway transportation business processes must take into account transportation changes, as well as changes to the rules and orders regulating the infrastructure, haulage and car management.

Due to the restrictions imposed by the volume analyzed in this article, we were able to describe only some fragments of the whole freight transportation (train) life cycle. However the holistic model allows us to estimate all of the expenses for each transportation process (cargo movement and delays) by business profiles in real-time mode.

[29] Available at: http://works.bepress.com/anna_nagurney/191/

Such an approach takes into account the "contribution" of all the units participating in the freight transportation by transforming these into value formations, including the status and operation of the technical infrastructure, locomotives, foot-plate staff, rolling stock and freight terminal personnel, as well as the traffic department staff that enables and manages the freight transportation.

4. Mathematical description of the freight transportation model

Let us consider the basic definitions from the theory of graphs (Ford & Fulkerson, 1974), (Minieka, 1981) that are required to describe our model. Any graph used here consists of two groups with node elements, and with non-oriented arcs connecting these elements. The arc and the node are connected to each other if the node is an initial or an end point of the arc. Also, two arcs are considered as connected to each other if they are joined to one and the same node.

Let us assume that the following arbitrary sequence of nodes is prescribed: $x_1, x_2, x_3,.., x_i,.., x_n, x_{n+1}$. Then let us call a "trail" any sequence of arcs $a_1, a_2, a_3,..., a_i,.., a_n, a_{n+1}$. In addition, let us consider that the end points of the arc a_i, are the nodes a_i and a_{i+1}. It follows that $a_i=(x_1, x_{i+1})$ и $a_i=(x_{i+1}, x_i)$ for $i=1, 2, 3, , n$. The initial and the end points of the trail are connected: x_1 is the start node of the trail; whereas x_{n+1} is the terminal of the trail. The trail for which $a_i=(x_1, x_{i+1})$ may also be a path progression if we accept that $i=1, 2, 3,..., n$.

Let us consider that x_i is the station number, and define a_{i-1} and a_{i+1} as the numbers of the segments (arcs) adjoining the station; also, x_i, l_{i-1} and l_{i+1} are the lengths of the segments of the corresponding arcs: a_{i-1} and a_{i+1}. Then, the sum of all the distances L_i from the initial station of the train movement x_1 to the station x_i will amount to (km):

$$L_i = l_{i-1} + \sum_{i=1}^{i-1} l_i \tag{1}$$

Let us consider that $t_{i,i-1}^{\text{дв}}$ is the time spent by the train in moving along the segment a_{i-1}; while $t_i^{\text{пс}}$ is the delay time at intermediate station x_i; and $t_i^{\text{тс}}$ is the delay time at the train service station x_i, due to a footplate staff change, or a technical inspection or any other transit service.

The time for the train to reach the station x_i will then amount to (minutes):

$$T_i^{\text{дв}} = t_{i-1}^{\text{дв}} + \sum_{i=1}^{i-1} t_i^{\text{дв}} \tag{2}$$

Furthermore, we can calculate the time taken by the train to travel from its origin to its destination in the same way, with an account of the total delay times; in this case, the total train travel time from its origin to its destination will amount to (minutes):

$$T_n = T_n^{\text{ДВ}} + T_n^{\text{ПС}} + T_n^{\text{ТС}} \tag{3}$$

The average speed v^y along the whole route will amount to (km/h):

$$v^{M} = \frac{\sum_{i=1}^{n} l_i}{T_n^{\text{дв}} + T_n^{nc} + T_n^{TC}} * 60 \tag{4}$$

All of the specified parameters are used in analytical studies and are intentionally identified during the traveling of a train or a group of trains on each route from the exit station to the destination point, taking into account the type of cargo and the train category, in order to calculate the travel times and the delay times at intermediate and train service stations. The gross ton-km during the train movement is calculated in the same way in two dimensions: along the segments, and while approaching the station x_i (x_n).

The infrastructure operation expenses during the train movement and delay are also determined. This is because we can separately calculate the expenses on the segments (at the train service stations) where various transit operations are performed, e.g. footplate staff changes, technical inspections or commercial services.

5. Mathematical model of the added value during the handling of through trains at train service stations

Based on a typical process of the train service station operations, a datalogical description of these processes was made in the form of traffic maps. Thereafter, the process-based functional models of the added value for a through train handling process were further developed for: a footplate staff change, a locomotive change, a change of weight, and the length of a through train (Karchik et al., 2010), (Zhuravleva et al., 2013).

The cost breakdown for each stage of the process demands an appropriate mathematical description. As a result, the costs of one train delay per minute at a train service station x_i will amount to:

$$c_i^{mc} = \delta^* m \tag{5}$$

where m is the number of train cars; and δ^* is the cost of the through train handling by all units i, all operations j and all types of handling per minute per car.

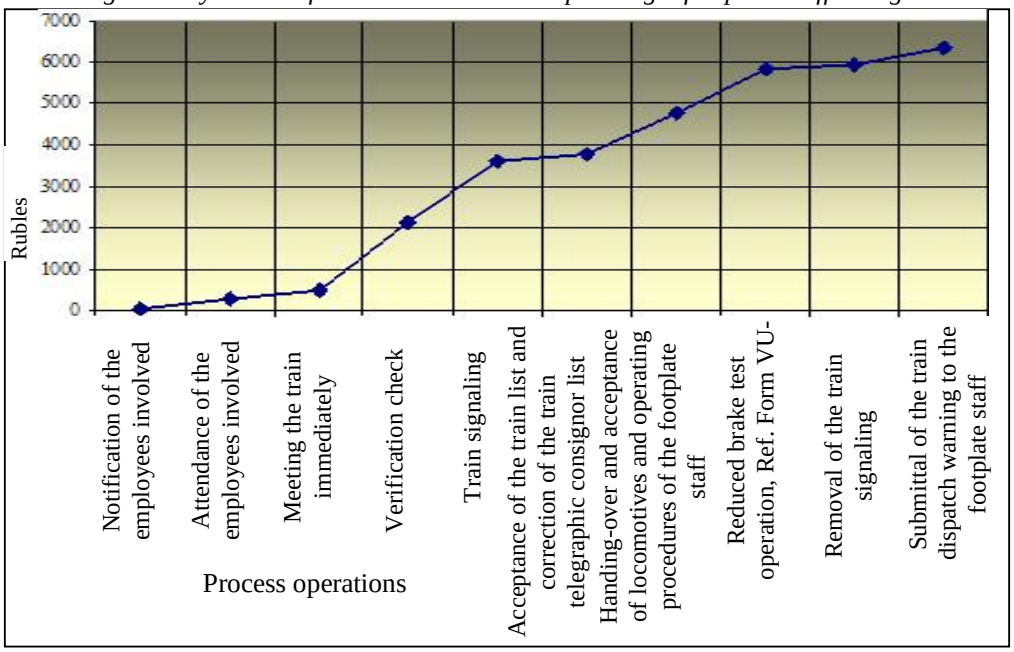
6. Testing of the model for a train service station during a footplate staff change and a locomotive change

The brief description of the model within the framework of this article does not allow us to display all of the process-based functional relations between the specific operators and robots at a train service station; therefore, we will analyze the main operations during a footplate staff change and a locomotive change, to determine in particular the change of the operational time (delays during footplate staff changes, train dispatches and other losses). By means of the evaluation of the time span for each expense item, it is possible to figure out the cost of the train's movement and handling.

The same logic applies to the description of the process-based functional relations between transportation units and operators, which allows us to estimate the time spent and costs incurred by each operator. Thus, it is possible to trace the way that the corresponding costs are formed (in accordance with the well-known Porter's Value Chain) by each transportation unit in the course of the train's acceptance, handling, footplate staff change and the train's dispatch. In general, the tracking and linking of concurrent expenses by their functions and processes allows us to estimate the contribution of each transportation unit, at each technological conversion stage, and to specify this data for each car, train or operation.

All of the specified operations are parametrically harmonized, as is shown on Fig.1.

Figure1: Dynamics of the added value buildup during a footplate staff change



Source: own processing

7. Conclusion

The specified model was successfully tested on dozens of routes involving the transportation of oil, coal, containers, ferrous metal and other mass exports as part of the exit routes in the operating domain of the Northern and Oktyabrski Railway in 2010-2014. Furthermore, this model can be used with slight modifications for a budget analysis of the performed transportation that takes into account all of the factors affecting this budget. It can also be used for an analysis of the performed transportation cost with an analysis of the locomotive use rate and train speed. With the further development of the economic description of this model and the traceability of the train speed according to the load rate, it will be possible to estimate the influence of the train speed on the growth of the consignors' marginal profits.

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STRESS MANAGEMENT AT WORKPLACE

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Abstract. Globalization with its socio-economic consequences has a major impact on small and medium-sized enterprises. In the current international trade organizations face constant pressure and the need of quickly and flexibly adapt to the surrounding environment and its changes. All of these pressures in the discontinuous environment can mean a pressure of not only the organization from the outside, but also on the employees inside the organization. The workers are subject to ever-greater demands and higher level of responsibility. All these effects can lead to the formation of workers stress, which affects both their working and private lives of key success factor and competitive advantage, however, can only be sufficiently productive and satisfied employees, and it is therefore appropriate to make the enterprise actively engaged in this issue. The paper is focused on stress in the workplace and stress management in the environment of small and medium enterprises. The paper analyses the current state of this issue in selected companies with focusing on the most significant stressors and their effects on work performance. This condition is researched via a questionnaire survey, observation and uncontrolled interviews in SMEs. Due to that stress management is very actual topic is necessary to consider carefully this issue for the companies.

Keywords: stress, stress management, stressors, work performance, SMEs

JEL Classification: M10, M12, M14

1. Introduction

In the current world trade organizations face constant pressure and the need of quickly and flexibly adapt to the surrounding environment and its changes, which go hand in hand with the growth of new technologies, the introduction of new products and production processes, the development of communication technologies and the speed of exchanging information. If organizations were not able to adapt to these changes quickly and flexibly enough, they would become obsolete and would be overtaken by companies that have been able to better tailor its activities of the outside world.

"Radical changes to employment practices combined with smaller workplaces and more pressure to perform have resulted in stress being an inevitable part of organisational life" (Bourne, 1997).

The result of all these phenomena is the need for continuous improvement and persistent effort to obtain and maintain a stable position on the market. One of the main aspects that decide the eventual success or failure of the company on the market, are its employees. Competitive advantage can be only efficient enough and motivated employees.

Employees are subject of ever-greater demands and responsibility. All these effects can lead to the formation of their stress, which affects both their working and private lives. This stress is often perceived as an integral part of our lives that already belongs to the current hectic and turbulent era.

However, it is important to realize that it is work-related stress, which can affect the work performance of employees and the overall atmosphere in the workplace and it is necessary not to underestimate the level of work-related stress, but rather to learn to manage and cope with it effectively.

2. Importance of Stress management

„Commonly, stress is viewed as a response to particular events. It is a normal reaction of human body preparing itself in the face of difficulties with focus, strength and improved alertness" (Chen et al., 2017).

As Armstrong (2011) states, there are a number of reasons why businesses should také aware of stress. The first reason is social responsibility for ensuring a good quality of working life. The second reason is that excessive stress can cause illness and the third reason is that excessive stress can reduce the effectiveness of the worker.

It exists a difference between eustress and distress. Eustress is a positive stress (Chen et al., 2017). Eustress is characterized by the individual's confidence of being able to master given demands successfully (Mohr, 1993). However, stress at the workplace may reduce the ability to concentrate fully and thus work efficiency (Hiriyappa, 2013). In addition, as Urban (2016) states, work-related stress is also creating disruptions in workplace disputes that interfere with workers' cooperation.

In today's society, the most valuable investment in the organization the human power is becoming and management experts and psychologists pay more attention to the factors that affect (the increase or decrease) human efficiency. They try to highlight positive factors and limit and negative factors. These factors naturally include work-related stress, which affects the physical and mental aspects of individuals and reduces their effectiveness (Decenzo in Assadi, 2003). Next study states that: „ *A link between psychosocial factors and atherosclerosis; however, the specific nature of the association is not known"* (Spence et al., 1999). „*Psychosocial stressors are not only associated with psychosomatic complaints and health indicators, but also with musculoskeletal problems, both acute and chronic"* (Bongers, 1993).

The complexity of the stress phenomenon, the high degree of absence or fluctuation of workers, frequent interpersonal conflicts, or workers' complaints are some of the indicators of work-related stress. Determining whether work-related stress is a problem can include an analysis of factors such as work organization and working practices (organization of working hours, degree of autonomy, consistency between worker qualifications and job requirements, workload, etc.), working conditions and environment (exposure to gross behaviour, noise, heat, dangerous substances, etc.), communication (uncertainty about what is expected in the job, employment prospects or future changes etc.) and subjective factors (emotional and

social pressures, feeling of incompetence, etc.) (MPSV, 2009). Individuals with experience of work-related stress and numerous epidemiological studies have documented its negative health effects, especially with regard to cardiovascular disease (Loerbroks et al., 2016). „*Stressors are the physical and psychological demands that initiate the stress response within individuals"* (Hargrove et al., 2011).

The European Agency for Safety and Health at Work (EU-OSHA), in a study entitled "Calculating the Costs of Work-related Stress and Psychosocial Risks" (2014), has dealt with quantifying the economic costs associated with stress at workplace. Costs mainly included:

- absence due to illness related to stress,
- lack of adequate work performance,
- staff turnover,
- other costs (e.g. accidents, injuries, etc.).

Tangri (2003) proposed a special formula to facilitate the calculation of stress-related costs in organizations. The formula is based on percentages of the cost of a particular workplace attributable to stress.

3. Methods

The paper is focused on stress in the workplace and stress management in the environment of small and medium enterprises. The paper analyses the current state of this issue in selected companies with focusing on the most significant stressors and their effects on work performance.

The current status of stressors and their possible effect on the work performance of employees has been studied on the basis of the questionnaire survey. The questionnaire had 18 questions and included semi-open and closed questions. The questionnaires were personally forwarded to respondents during the months of November to January 2014–2015.

Questionnaire survey was focused on the assessment of stress factors in the workplace by employees, in addition, the possible influence of work stress on their work performance, the willingness to receive training or a stress management seminar and marginally even pathological situations in the workplace, for example, mobbing, bossing and sexual harassment in the workplace.

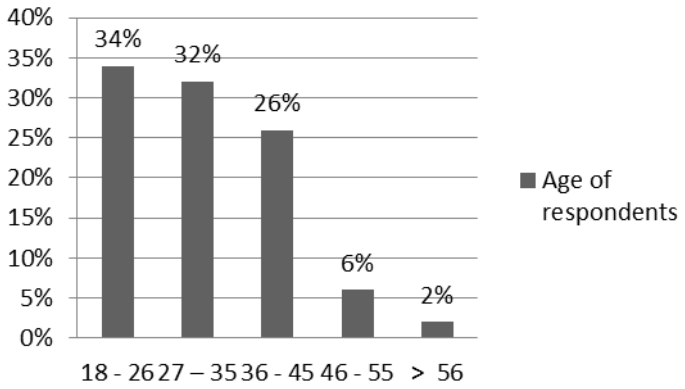
The survey was conducted with the staff of the selected enterprises, where workers are in daily contact with customers. Just contact with customers was a key factor for the selection of respondents. 25 retail units and their branches in the South Bohemia region was interviewed. Rate of return of the questionnaires was 80% because some of the questionnaires had to be discarded for incompleteness.

The underlying file was made up by employees who are in daily contact with customers. Businesses were selected of the South Bohemian region.

The obtained data was processed during the months of January - May 2015.

The survey involved 200 respondents, the most numerous group of them were women (81%) between the age of 18-35 years (66%).

Figure 1: Respondents according to age



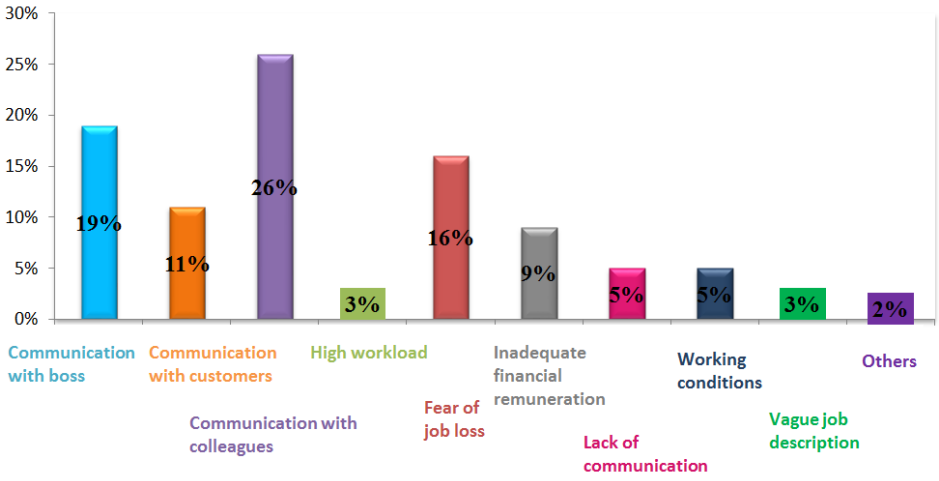
Source: own research

4. Results and discussion

60% of respondents are satisfied or rather satisfied at their workplaces. In contrast, 40% of respondents are rather dissatisfied or dissatisfied. Of this, only 11% of respondents are dissatisfied. Satisfaction is a very subjective perception, but its measurement is one of the basic tools of modern human resource management. With the increasing power of globalization and accompanying changes, the competitiveness of businesses is heavily dependent on employees of companies and their possible dissatisfaction can cause many problems: fluctuation and associated costs, lower performance, etc. Satisfaction of employees may be related to the degree of stress in their employment. Like stressful or rather stressful, 57% of the surveyed employees who are in daily contact with customers evaluate their job. Only 10% of respondents perceive it as non-stressed.

Between the other most important stressors include (fig. 2): communication with customers (26%), communication with boss (19%), fear of losing their job (16%), and communication with co-workers (11%). It is obvious that one of the greatest stressors is interpersonal relationships. Employee satisfaction, efficiency of transmission and information sharing depend on their quality. With others, one is exposed to interpersonal conflicts, frustration, and negative emotional responses. Fear of loss job can also be caused by last economic crises.

Figure 2: Stressors within workplace



Source: own research

In the survey, 40% of respondents said that stress is motivating or rather motivating for better work performance. However, a total of 60% of respondents stated that stress is not motivating or rather motivating for better work performance. It can be said, therefore, that almost two thirds of employees perceive stress as a factor that does not motivate them for better work performance. Thus, the argument of many managers that stress creates motivation for employees to perform better in fulfilling the task cannot be confirmed.

60% of respondents say that stress significantly reduces their work performance (in concentration disorders, irritation to the environment, frequent mechanical errors, etc.). The results show that 36% of respondents perceive stress as a devastating element that affects not only their work performance but also their personal lives. An employee who has a high stress burden on his / her job is in some cases unable to cope with this burden and projected her into both her profesional life and her personal and family life. Work related stress affects not only the worker but also his immediate surroundings. The quality of working life affects not only the status but also the identity of the person and it is therefore important to pay increased attention to this issue.

Overall, 58% of respondents feel stress at work at least once a week or daily. Only 11% of respondents feel it less than once a month. It can be assumed that the many occurrences of stress situations are due to high requirements with low competencies, high engagement and work associated with day-to-day contact with customers.

A total of 68% of respondents agree with the statement that stress may or may be negatively reflected in the services they provide to customers. This fact can be considered alarming and more than half of respondents have experienced this situation.

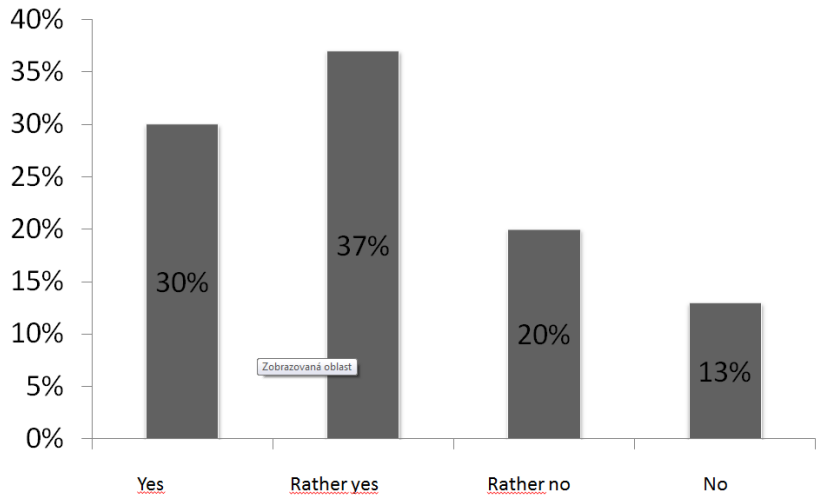
A total of 68% of respondents agree with the statement that they are committing work mistakes as a result of stress or fatigue. Only 12% of respondents did not accept this fact. It can therefore be assumed that there is a clear link between stress and reduced performance

And error rates in the work process. This should be taken into account by employers as a factor that can reduce the costs of the company, which may be related to staff errors, especially in contact with customers. However, only 36% of respondents believe that their employer would devote or rather devote himself to preventing stress at the workplace. On the other hand, 64% think that their employer is not paying attention or not paying attention to it. Employers should therefore take concrete steps to talk openly to employees.

There are many studies that examine how stress affects not only the individual's psyche, but also their physical condition. It is alarming to what extent workers experience health problems associated with stress, which perceives a whole 87%. Other symptoms reported by employees include, for example, anorexia, depression, hypersensitivity, or decreased appetite.

From uncontrolled interviews, employees have no clear idea of how the employer can take action to prevent or reduce stress in the workplace. However, 67% of respondents would welcome a training or stress-management seminar in their businesses. Only 13% of respondents expressed a clear lack of interest in this type of training.

Figure 3: Interests of respondent about stress management training



Source: own research

5. Conclusion

In conclusion, work stress affects the organization's performance at all levels. This stress can have a negative impact on customer service, work performance and quality of work done at all. Beyond these problems there is an increase in absences or fluctuation of employees and the resulting economic impacts.

The results of the survey clearly show that almost 2/3 (63%) of the interviewed employees of the retail units, whose everyday part is working with customers, see the link between work-related stress and its negative impact on customer service, and have already experienced this situation .

Possible suggestions for measures that could improve the situation at the workplace include, for example, a thorough selection of the managerial positions, the creation of a suitable working environment for strengthening responsibility and the management of the staff, constant and careful professional training for senior staff, the effort to actively teamwork in organizations, the inclusion of seminars, training or stress management training in the workplace and of course the development and improving of effective communication. *"Combining knowledge regarding psychologically healthy workplace practices, stress management intervention levels and the personal resource allocation framework, we present a comprehensive framework for approaching workplace stress management, which can be tailored to the unique needs of various organizations, departments and employees"* (Grawitch et al., 2015).

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FATE OF TWO SIGNIFICANT PREDICTIONS ABOUT THE REDUCTION OF WORKING TIME IN A GLOBALIZING WORLD

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Abstract. The article considers labor costs in various countries in a globalizing world.Two forecasts about the working time dynamics made by C. Marx and J.M. Keynes are analyzed. The methodological basis of these forecasts is revealed. This basis is characterized by the use of macroeconomic approach to labor input research. It is fixed that because of this approach the regularity of liberation of labor from production as a result of labor productivity rise was found. It is shown that following this logic Marx and Keynes made the conclusion about the possibility of labor input absolute reduction long before such a reduction in the modern developed countries. It is revealed that Marx's suggestion about the transformation of the majority of employees in an unemployed population was wrong because of exaggeration of class interests contradiction. It is found that forecast about the implementation of three-hour shifts in 2030 made by Keynes ignored some tendencies contradicting the working time reduction. The conclusion is made that the approach used in the forecasts should be being developed. Comparing the two forecasts by C. Marx and J.M. Keynes unfulfilled, but has a deep scientific content, it is possible to note the similarity of positions of principle of the great economists. Both consider the problem of the dynamics of working time, based on the dynamics of the social productivity of labor, the analysis of changes in the level of total labor input and employment. The use of these approaches becomes particularly relevant in a globalizing world.

Keywords: labor productivity, labor input, working time reduction, three-hour shifts

JEL Classification: F01, E60, B31

1. Introduction

The problem of the dynamics of working time is relevant for a modern economy, because it is about the size of the resource work - one of the key economic resources. In many developed countries there is a situation where the proportion of the working population decreases, which, other things being equal, may cause labor shortages with respect to the need to ensure high living standards for the population as a whole. Against this background, in recent years in these countries is slowing the rate of reduction of working hours, introducing reforms to increase the period of labor activity of workers. Similar processes occur in the Russian economy. They, like the West, become the subject of heated public debate. All attach a special significance to research the dynamics of working time.

In the economic literature trends in changes in the level of working hours actively studied (Costa, 2000), (Pouwels et al, 2008), (Garnero et al,2014), (Gimenez-Nadal & Sevilla, 2014).

In addition to articles on specific aspects of the problem, published works of a general nature, which summarizes the experience of legislative reduction of working time, inter-country comparisons are made (Estevão & Sá, 2008), (Lehndorff et al, 2010).

Due to the research it was found how to change the length of time worked in the past decade based on the average worker, and, depending on the membership of a certain social and demographic groups; they have engaged in full and part-time, etc. The effect of the reduction of working hours to increase productivity and employment was found.

In the context of the research, fixing predominantly positive impact on the reduction of working time on social and economic development, can be found the case for a substantial reduction of working hours in developed countries (Larionova & Varlamova, 2015)

2. Body of paper

Meanwhile, the work of employees - it is an element of total labor input throughout the economy and, more specifically, any of its spheres: the production or non-productive. That total labor input is directly determined, on the one hand, the volume of social needs, and on the other - the level of social productivity of labor. So, the dynamics of individual labor input is based on the change in the level of the total.

Dynamics of labor input per employee is derived from changes in the volume of public fund of working hours, but not identical to it. Another macroeconomic factor affecting individual labor input is the level of employment. As a result, the situation can be multi-directional changes in the levels of total and individual labor input. This happens, for example, in the Russian economics, where the total labor input in the manufacturing sector decreased, while hours worked per employed increased because of the decrease of employment, advanced reduction in total labor input. (Zolotov et al, 2015).

This approach is an extension of the theoretical tradition, presented in the works of such great economists as Marx and J.M. Keynes.

The theoretical heritage of the great economists contains not only a system of scientific statements that reflect the operation and development of economic systems, but the predictive component. Considering the progress of production under capitalism, Marx suggested, «If the development of the productive forces has reduced the absolute number of workers, that is, in fact, it would enable the nation to make all of its production in a short time, it would have caused a revolution, because the majority of the population would have been out of work» (Marx & Engels, 1876)

As the experience of recent decades, in the developed capitalist countries, the absolute number of workers decreases - along with an increase in productivity - and the total time spent in production is reduced. Despite this, majority of the population remains without work, the revolution in these countries has not occurred.

In 1930, J.M. Keynes published an essay, which he called «Economic Possibilities for our Grandchildren» The purpose of his work was to «get rid of view of short-term and strive to the Future» answering the following questions: «What we can reasonably assume about the level of our economic development in a hundred years? What will be the economic possibilities for our grandchildren?»

The great economist predicted that in a hundred years in the advanced countries, the economic problem, understood as the struggle for existence will be resolved. However, for ordinary people, with no special talents, to occupy himself a problem to continue the habit of work («follow the old Adam»). In this regard, Keynes wrote: «Three-hour shifts or a fifteen-hour working week will solve the problem. Three hours a day is enough to satisfy the old Adam in most of us» (Keynes, 1931). According to Keynes, such a reduction should take place simultaneously with the rise in living standards by 4-8 times.

One hundred years, which were shared the forecast, due to expire in 2030. Living standards, as measured by per capita GDP is increasing in developed countries more rapidly than expected in the forecast Keynes, and the standard of living in 2030 will likely exceed the predicted value.

As for the shifts in the developed countries, they now account for 7-8 hours, the workweek is in the range of 35-40 hours. Taking into account the existing dynamics of working time, it is safe to say that after 15 years and the working day and the working week will be significantly (at least twice) longer than predicted by Keynes. This forecast today can be attributed to unfulfilled.

The forecasts do not come true, first of all, because in the calculation there are no factors that counteract the predicted trends.

Scientific content of unfulfilled predictions of great scientists, such as K. Marx and J.M. Keynes, can be so deep that there is not enough mastered many decades later. Meanwhile, its development would contribute to the development of economic science.

Thus, the analysis forecasts marked to identify their rational nucleus and causes an error has actual scientific value.

K. Marks about the reduction of working time of «the whole nation»

What is great in the prediction of Marx and why he has not come true?

Marx rightly considers the reduction in the absolute number of workers as an expression of the productive forces, whom criterion serves to increase public productivity. The fact that this campaign is not accidental, is confirmed by another, more famous theoretical proposition put forward by Marx: «The country is the richer, less is at one and the same quantity of products, the performance of the population with respect to the nonproductive. After all, the relative paucity of productive population would be just another expression of the height of productivity» (Marx & Engels, 1876)

Note that Marx is based on the tradition established by Smith, to allocate work to create products (productive labor) from all kinds of social activities. It is about the performance of the work in question in the present situation.

The relative decrease in the number of workers is compatible with its absolute growth: enough to employment in the non-manufacturing sector, which is characterized as «non-productive population», grew faster.

Consequently, Marx in the conditions when capitalist industrialization was accompanied by an increase in the number of workers, as evidenced by the statistics used in the «Capital», raised the question of reducing its absolute. In this aspect, it is anticipated the situation, strengthen the economy of the developed capitalist countries a century later.

In the analyzed position, the idea of «the possibility of the nation to perform all their production in a shorter time», attracts attention. Thus there is the question of the absolute labor saving in material production as a result of increasing labor productivity.

Marx was the base for identifying the emancipation of labor in capitalist production to the dismissal of employees. He rightly pointed out: «The absolute interest of every capitalist is to squeeze a certain amount of work from a smaller, but not because of a larger number of workers, even though the latter cost as cheap or even cheaper. In the latter case, the cost of constant capital increase in proportion to the mass of the produced work, in the first case - a lot slower» (Marx & Engels, 1876). Accordingly, with a decrease in «a certain amount of labor» in connection with the use of new technology should not be a reduction of working hours per employee, while maintaining the same number of employees and reduction of employment. This situation was prevalent in the 19th century.

This allowed Marx to associate the law of universal capitalist accumulation to form a «reserve army of labor», which was formed by the workers concerned. So it was to take place under the dominance of the reduction of employment in the economy as a form of labor input in production.

The validity of this conclusion is confirmed by considerations of Marx that the strengthening of the attraction of working capital due to increased repulsion them. Scientific convincingly argued that the widespread growth of the organic composition of capital, reflects the ratio of materialized and living labor, causes the appearance of relative surplus population (Marx & Engels, 1876).

That said, the inclusion of the contents of general law of capitalist accumulation background of increasing «the absolute value of the proletariat» (Marx & Engels, 1876) did not comply with the general logic of Marx's reasoning

In the words of Marx, «... takes the free development of individuals and, therefore, there is no reduction of necessary labor time for the positing of surplus labor, and general reduction of the necessary labor of society to a minimum, which in these conditions corresponds to the artistic, scientific, etc. development of individuals through free up all the time and created for this medium.» (Marx & Engels, 1876), (Marx, 2008). Of course, to ensure the development of skills needed employment in the areas of education, health, science, etc.

In all cases where Marx saw the problem of the reduction of working time, he correlated it to the workers. It should be recognized that the professional activity in «the realm of freedom», and by its content, and the conditions thereof, that is, according to the criterion of human development, as a rule - the activity of a higher order than the labor of the workers. It is not possible to identify the problem of optimizing the reduction of its duration time workers.

If the development of human abilities is becoming a priority, the natural is the prevalence of activity in the non-manufacturing sector over the total labor input in production. This is manifested in the dominance of the modern economy as the dominance of employment in the service sector. The workers - a minority among the employed, but the majority of the population «was left out in the cold». The content of a specific forecast is in conflict with the legitimate of the question of «reducing the necessary labor of society to a minimum», the «release time for all.»

In our opinion, this contradiction can be explained by the absolute opposition of interests of capitalists and wage workers. «The free development on one side, - Marx wrote, - is based

on the fact that all the time, therefore, all the space for the development workers have to spend solely on the production of certain consumer values; the development of human abilities on one side is based on the barriers that put development on the other side. This is based on the antagonism of all hitherto existing civilization and social development of all.» (Marx & Engels, 1876)

Marx forecast was made when the working day reached 12-14 hours, leaving little free time for working. The possibility of workers implied a significant reduction in working time, which seemed to Marx in this period is unlikely: «... If everywhere was limited to the rational sizes and for different sections of the working class would be introduced gradation according to age and sex, the inventory of the working population would have been absolutely insufficient to keep national production in its present scale (Marx & Engels, 1876). Accordingly, the use of the release of labor from the production to the development of everyone, including workers, Marx linked with society, coming to replace capitalism.

Thus, the Marx's analyzed forecast in terms of the question of an absolute reduction of the number of workers, about the possibility of the nation to make its production in a shorter time deserves recognition as a research has revealed the prospect of development for 100 years. This forecast was based on the findings of the full-scale, systematic review of the theory of capitalist production and therefore has a scientific nature.

Accordingly, the macroeconomic approach to the study of the dynamics of work that gets the realization of the implementation of the forecast, is wealthy, promising and requires the active use of modern research. This can be seen by considering the forecast Keynes as a radical reduction of working hours and the working week by 2030.

J. M. Keynes about three hour shifts and fifteen hour work week

The forecast of Keynes reduction of working time is considered in the context of the growth of living standards. (Keynes, 1931). Consequently, it is obvious to combine the ability to increase production of the social product and the economy, the release of labor from the production of: and that, and another - a consequence, forms of raising labor productivity.

The fact that labor saving Keynes regarded as a source of unemployment, in common with Marx's idea of the appearance of relative surplus population as a result of technological progress under capitalism.

Robert Skidelsky and E. Skidelsky believe that making a bet about the value of the working day in 2030, Keynes was based on the dynamics of working hours in the period from 1870 to 1930 (Skidelsky & Skidelsky, 2013). In fact, during this period of time working day was reduced from 11-12 hours to 8, that is decreased by an average of 35 - 40 minutes per decade. When you save these dynamics 100 years later, he was not to exceed 3 hours.

Assumption made by these authors, legitimate, but it does not account for a significant aspect of Keynes's approach to forecasting. The scientist operates, first of all, by the dynamics of the general labor input. He supposes that «in quite a few years—in our own lifetimes I mean—we may be able to perform all the operations of agriculture, mining, and manufacture with a quarter of the human effort to which we have been accustomed»(Keynes, 1931). Hence, the idea of the possibility of reducing working hours (more precisely, work shift) is based on the premise of an absolute reduction of the fund of working time in material production.

Keynes recognizes that an absolute reduction of labor input in production is not enough to reduce the working day: the dynamics of employment should be based. In fact, if the number of employees in manufacturing will decline faster than the overall labor input is reduced, the average working hours per employee will increase. Present situation - not the purely hypothetical, it is characteristic for the Russian manufacturing sector in the last decade. Thus, it is expected increase in the share and number of employees, that even with constant overall labor input reduces the amount of working hours per person employed.

As you can see, Keynes formulated the possibility of an absolute decrease in production time in the material production, much more clearly than Marx. He believes that the ability to fully implemented in the framework of contemporary capitalism. However, his statement appeared 60 years later, and before him was the experience of decades of rapid development of large-scale machine industry, not only in England but also in other capitalist countries. If in 1800 47 million people were involved in manufacturing, in 1900 – 45 million were occupied at enormous increase in volumes of production as a result of the production efficiency increase (Huberman et al., 2014). Although in the future, in the context of rapid population growth, the number of people employed in this key area has been increasing, but the possibility of an absolute reduction of labor costs in manufacturing have been confirmed in practice.

And this is another important point. In 1930, the main field of employment acted production. Consistent supporter of the reduction of working time in the production did not ignore such a reserve to achieve the planned targets.

With that said, the values of the working day and the working week in the forecast of the great economist not seem too low. Assuming that the overall labor input in the production would be reduced by 4 times, and it has increased employment, hours worked per employed would have to fall by more than 4 times. Because of the increase of free time would be used to increase the number of public holidays and the duration of paid leave, the pace of reduction in the working day would be somewhat below the rate of reduction of total waste of time. Accordingly, three hours as the upper limit of the length of the work shift appear quite reasonable rate.

Such reduction of working hours, according to Keynes, will significantly change public life: “Thus for the first time since his creation man will be faced with his real, his permanent problem —how to use his freedom from pressing economic cares, how to occupy the leisure, which science and compound interest will have won for him, to live wisely and agreeably and well”. (Keynes, 1931).

If Keynes's forecast for growth in living standards is carried out, why his assumption about the dynamics of the working time is not come true?

In 1930, the developed countries, 80% of employees worked in production, 20% - in the service sector. Currently, there is an inverse relationship. If the population has not changed, there would be a four-fold reduction in total labor costs in manufacturing. Keynes assumed the lack of significant population growth.

Meanwhile, world population has increased since 1930 by more than 2.5 times, and even in developed countries - more than 30%. This manufacturing of developed country-leaders focused on the growing demand of the world market.

For example, in developed countries, employment in the manufacturing sector increased to 1980 and reached 71.5 million people, and from 1980 to 2010 it was reduced to 51.1 million.,

That is 28.5% (Huberman et al,2014). The absolute reduction in labor input in manufacturing in developed countries occurred, although in smaller quantities than forecast Keynes.

R. Skidelsky and E. Skidelsky give a number of arguments, which must explain the error of this prediction (Skidelsky & Skidelsky, 2013).

As one of the arguments with which these authors agree only partially, is consideration of work as a pleasure.

In contrast to these authors, we believe that this factor will be valid after adjusting working time to the duration corresponding to the needs of labor. Up to this point he can not preclude for the reduction of working time.

The motive «motivation for work» is seen as a further obstacle in the economic literature, when employers force employees to work longer than that provided that the workload would be shared between a significant number of employees, since in the latter case, it would require Employers additional costs. Noted factor can prevent the reduction in working time only on condition that «the absolute interest» capitalists are not counteracted by the interests of workers in the reduction of working hours without reducing wages.

A great place in the explanation this deviation is the problem of «unsaturated». Keynes shared needs of people in the class 2: absolute, measurable saturation and relative, connected with the desire to excel others and because unsatisfying. The solution of economic problems, he connected with the absolute satisfaction of needs, but says nothing about the relative influence on the course of economic progress. (Keynes, 1931)

Robert Skidelsky and E. Skidelsky, analyzing this approach, write that Keynes «represented people like having a fixed set of natural needs. He did not understand that capitalism has a dynamism in the generation needs, which is able to overcome obstacles in the form of habits and common sense» (Skidelsky & Skidelsky, 2013). According to them, various types of insatiable needs and encourage people to work longer.

The existence of this type of demand is not in doubt. However, the desire to make money at the expense of overtime is not usually associated with the desire to purchase prestigious goods, and - to provide basic needs. (Reznakova & Peta, 2016), (Dong, 2016) As a driving force for further work absolute and relative needs, in our view, are identical.

In the last decades of the 20th century in the form of inflation will be a factor that gradually reduces the level of the real content of wages and additional labor inducing workers to increase or at least maintain the current level of life. (Kosior et all, 2016)

Thus, despite the fact that the prediction of Keynes has not come true, macroeconomic assumptions underlying the projections and the use, with appropriate adjustments, in the analysis of contemporary capitalism.

3. Conclusion

Comparing the two forecasts, unfulfilled, but has a deep scientific content, it is possible to note the similarity of positions of principle of the great economists. Both consider the problem of the dynamics of working time, based on the dynamics of the social productivity of labor, the analysis of changes in the level of total labor input and employment. (Obadic & Pehar, 2016) Their approach differs significantly from the used ones in the majority of the

modern researches which are limited by the microeconomic analysis of working hours problem and therefore they do not reveal regularities of its dynamics in a proper way.

However, the forecast errors have a specific nature.

Marx exaggerated barriers that impede transformation of economy of labor in the spare time of workers under capitalism. He attributed the progress in this area to a new society. Meanwhile, in capitalist society, these barriers have been largely surmountable, including through the trade union movement.

Keynes, on the other hand, did not take into account some of the trends, opposing the reduction of working time under capitalism or underestimated their strength. Experience has shown that in a result of these trends the potential of the multiple increase of social productivity of labor has not received adequate implementation in the reduction of the working day and working week.

So, it is necessary to investigate in detail how the results of labor productivity increase are distributed between the increase in employment in the service sector and an increase in free time of production workers. Such a study, based on a methodological approach of the great economists will give an opportunity to overcome the erroneous aspects of their forecasts.

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TOTAL HOURS WORKED DURING WORKING LIFE: DYNAMICS AND PERSPECTIVES

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Abstract. An important question in globolazing world for economies of developed countries and Russia is of changing the retirement age. This question is investigated in the context of the dynamics analysis of average hours, worked during the whole working life. The decrease in the general number of hours worked during the working life of workers who started working in the 1950-s, in comparison with the previous generation is explored. This trend is explained by the decrease of average annual hours actually worked per worker life during. the second half of the XX th c. Together with the reduction in the total hours during the working life, the legal increase of pension age may combine with the decrease of labor loading for the workers retiring after the pension reform comes into force in comparison with the workers retiring in accordance with the acting law. The perspectives of pension reform in economically developed countries and Russia is evaluated from this perspectives. Labor loading of Russian workers has tendency to increase, the increase in the retirement age under other equal conditions will lead to a considerable lengthening of working life. A gradual decrease in a share of the years worked before the 90-s in the nominal length will play its role in it. As a result, if to introduce beginning with the year 2020 60 years retirement age for women the real length of the working life will be about 79200 hr that is there will be 7000 hr increase. To sum up, it is likely that only the reduction of real length of working life will make possible an increase of the retirement age in Russia.

Keywords: age of retirement, pension reform

JEL Classification: F01, G23, I31

1. Introduction

The problem of the increase of the retirement age is widely discussed in many countries. In discussions about the problem of the changing of the retirement age financial aspects are stressed – the threat of pension funds deficit as a consequence of the increase in the number of pensioners under the existing pension legislation. The arguments and calculations are given showing that the increase in the retirement age leads to the decrease of spending on the pension provision (Staubli & Zweimüller, 2013).

Factually, under the changes of financial aspects of pension provision we speak about the change in the distribution of income between different generations. Very important is the

argument that the ratio of the working-age population to the non-working-age population has been falling in Japan and Europe (Bloom & Sousa-Poza, 2013).

It is supposed, therefore, that the decrease of the share of economically active population in relation to the pensioners makes it impossible to produce GDP in volumes providing the growing demands of all generations including pensioners. On this basis it is suggested to increase a share of economically active population, making higher the pension age.

The change like this does not reduce the number of consumers of GDP but increases the volume of labor resource. It goes without saying that the increase is possible if the workers of older age preserve ability to work. Statistics of developed countries to which Russia is oriented, gives evidence of the longevity growth among the retired which testifies indirectly the displacement of the higher border of factual ability to work (Wise, 2010).

The increase of retirement age by means of pension reform with the present continuity of working day (working week) does not formally increase everyday labor loading though for the workers of older age the fulfilment of such loading way become tiresome. The opinion that the problem of pension provision is necessary to solve only by increasing the retirement age abstracts from the key role of labor production. (Mahlberg et al., 2013). It is reasonable to discuss the problem of retirement age in the wide social-economic context (Mao et al., 2014; Radl, 2012).

The length of the working life influences health. No doubt, the conduction of the pension reform should not ruin health (Coe & Zamarro, 2011). Pension reform should be evaluated taking into consideration its influence on the equity between generations in analogy with the investigations of influence of the pension reform on the intragenerational equity (Aubert et al., 2013; Rush et al., 2015)

Taking into account what was said above, we still have the unanswered question: is it possible to combine the increase of the retirement age with improving the position of those generations who will work during the greater number of years? To answer this question it is necessary to draw a demarcation line between nominal and real length of service. The first is measured in the working years. The second – in general number of hours worked during all length of service. The hours actually worked for working life time can decrease even the nominal length of service, necessary to get pension money, grows.

The hypothesis of our investigation is follows: in some developed countries the increase of retirement age will combine with the decrease of hours actually worked during the working life.

2. Body of paper

To verify this hypothesis the data about the dynamics of the nominal length of working life, on the one hand, and average annual hours actually worked per worker, on the other hand, for the developed countries and Russia will be analyzed. Doing this we shall use the statistical data of the Organization for Economic Co-operation and Development. As for Russia, to evaluate the investigated processes the data of Russian statistics are used too.

The first index can be found in the statistics of OECD, the second is stated approximately taking into account the average number of years spent on studying and is equal to 19 years for those retired in 2012 in economically developed countries.

The real length of working life (RLWL) is determined by formula:

$$RLWL=\sum_{i=0}^{n} H_i \quad (1)$$

in which: H_i – average hours actually worked per worker in year i; n – number of years of nominal length of working life.

To reveal the perspectives of retirement age increase it is suitable to use the following calculation procedure. To the total number hours worked to 2012 for the persons who will retire first after the increase of the retirement age, it is necessary to add the multiplication of the number of years from 2012 to the year of the new retirement age introduction by the average hours actually worked per worker in 2012 in the given country. From the value received it is necessary to subtract the value of real labor service of those who retired in 2012:

$$\Delta\, RLWL = \mathrm{RLWL}_{2012+x} - \mathrm{RLWL}_{2012} \quad (2)$$

in which: x – the number of years from 2012 to the year of introduction of a higher retirement age.

Between countries are able to reveal the discrepancy in relative quantities of nominal and real length of working life. The real length of working life is determined by summing annual indexes of average time worked during the period of nominal one. The results of calculations are given in table 1.

Table 1:The nominal and real length of working life of workers retired in 2012

	Nominal length of working life (years)	**Real length of working life (hours)**
France		
men	40,7	68521
women	41,0	69112
Germany		
men	43,1	70693
women	41,6	67804
Italy		
men	42,1	80149
women	41,5	79192
Japan		
men	50,1	103045
women	47,7	97662
Korea		
men	52,1	113932
women	50,8	110209
Netherlands		
men	44,6	69173
women	43,3	66825
Norway		
men	45,8	72963
women	45,3	72046
UK		
men	44,7	84355
women	44,2	83386
USA		
men	46,0	86200
women	46,0	86200
Sweden		
men	47,1	76341
women	45,2	73272

Source: computed on the basis of OECD data

As we can see from the given data, the relative value of nominal length of working life not always corresponds to the relative value of the real one. For instance in Italy the average years number of working activity in less than in other countries including France.

Consequently, only by the number of years of formal ability to work it is impossible to judge about hours actually worked during all working life. Though the last point is crucial for the conditions of the human development. Divergence in these relative values does not, by itself, reveal the dynamics of the time worked during the period of nominal length of working life. To evaluate this dynamics it is necessary, first of all, to take into account the changes of the time worked volumes.

Table 2: The hours worked per one worker in economically developed countries

	1970-1979	**1980 -1989**	**1990-1999**	**2000 -2009**	**2010-2012**	**total**
France	18802	16887	16048	14904	4441	71082
Germany	18229	16514	15301	14318	4202	68564
Italy	19312	18734	18661	18211	5296	80214
Japan	21756	20982	19090	17843	5206	84877
Korea	…	28693	26116	23757	6440	85006
Netherlands	16795	15050	14468	14017	4147	64477
Norway	17161	15428	14923	14224	4254	65990
UK	18726	17487	17341	16766	4931	75251
US	18605	18259	18354	18109	5355	78592
Sweden	15400	15506	16211	16085	4892	68104

Source: is counted on the OECD data

The shown dynamics depicts not only the contraction of working time of full-time workers but also the practice of part-time work. As our calculations based on Germany data shown, the working hours of full-time workers during the analyzed decades, contracted approximately with the same tempo as on average of all employees. Though, its general value (71793 hr) was almost 5% higher than that shown in the table.

In Germany the workers retired in 2012, according to our calculations, had worked during their life about 70000-75000 hours – as opposed to 120000 having worked by the pensioners of 1970. The real length of working life by the workers born in 1951 was 3% less than that of the workers born in 1941. The tendency towards the reduction of the total time, worked per worker on average during life was typical also for other developed countries during the XX th and the beginning of the XXI c.

The reduction of working time then acts as a form of wellbeing rising of population when it is combined with the providing of society demands. In the opposite case – with the growth of poverty – non-working time loses its free character and that is why stops being the element of wellbeing. The consideration of the duration of the real length of service to a maximum degree neutralized the influence of crisis periods on the number of the hours worked. In non-developed countries the economic crisis stretched for decades, nevertheless a direct approve of the fact that the reduction of the working time acted as the element of the increase of the rise of social wellbeing is necessary. For this purpose, it is reasonable to compare the dynamics of worked time decrease and productivity increase per 1 worked hour.

Table 3: The dynamics of GDP per one worked hour and of average annual hours actually worked per worker in economically developed countries (in %)

	1970-1980	**1980-1985**	**1985-1990**	**1990-1995**	**1995-2012**
Germany Increase of real GDP per 1 hour worked	+3,8	+2,2	+2,5	+2,5	+1,3

Dynamics of average annual hours	-1,1	-0,94	-1,56	-0,36	-0,47
Korea					
Increase of real GDP per 1 hour worked	…	+6,9	7,9	+5,6	+4,4
Dynamics of average annual hours	…	+0,14	-1,42	-0,14	-1,07
Netherlands					
Increase of real GDP per 1 hour worked	3,9	+1,9	+1,6	+0,9	+4,4
Dynamics of average annual hours	-1,48	-0,90	-0,62	+0,08	-1,07
UK					
Increase of real GDP per 1 hour worked	+2,7	+2,6	+1,4	+3,6	+1,6
Dynamics of average annual hours	-0,92	-0,08	+0,08	-0,38	-0,24
USA					
Increase of real GDP per 1 hour worked	+1,5	+1,7	+1,4	+1,3	+2
Dynamics of average annual hours	-0,43	+0,76	-0,02	+0,14	-0,16

Source: it is computed on the basis of OECD data

As it is evident from the data of the table 3, in all the countries in time limits of all the periods under consideration the reduction of a number of worked hours accompanied by leading growth of labor productivity per 1 worked hour. Only in some crisis years – 2008 and 2009 in the UK, 2009 in the Netherlands, 1974 and 1982 in the USA and 2009 in Germany – the reduction of working time was on the background of decrease of return from every labor hour. But such market failures did not cancel the general tendency to the leading growth of labor productivity. (Cho et al., 2015)

Consequently, the reduction of the real length of service is compatible with the growth of social wellbeing at large, and that is why – with increase of real wage. The correctness of the conclusion made is proved by the data of table 4.

Table 4: The characteristics of wellbeing of workers and labor productivity in economically developed countries according to the data of the year 2012

	Average annual wage (dollar)	**Average annual wage in PPP (dollar)**	**Average annual hours actually worked per worker**	**Average wage per hour in PPP (dollar)**	**Average wage per hour in PPP (USA =100%)**	**GDP per hour worked in PPP (USA =100%)**
Countries with average annual wage more than 60000 dollar						
Switzerland	94900	49504	1619	30,6	115	86
Norway	91800	59738	1418	42,1	158	135
Australia	76400	41412	1685	24,6	92	83
Netherlands	61200	42316	1384	30,6	115	94
On average	81050	48242	1527	32,0	120	100
Countries with average annual wage 40000-60000 dollar						
Sweden	59500	39984	1621	24,7	93	85
Germany	59100	38080	1393	27,3	102	91
UK	58300	34272	1654	20,7	79	76
Japan	55300	32368	1745	18,5	70	63
Austria	53900	40460	1576	25,7	97	84
France	48000	33320	1479	22,5	86	93
USA	47600	47600	1790	26,6	100	100
Canada	47000	38080	1711	22,3	84	74
On average	53588	38020	1621	23,5	89	83
Countries with average annual wage less than 40000 dollar						
Italy	38100	30464	1752	17,4	65	73
Korea	36100	28560	2163	13,2	50	45
Spain	33700	29512	1666	17,7	67	78

On average	35970	29512	1860	16,1	61	65

Source: it is computed on the basis of OECD data

The data on the USA indicate greater duration of worked hours and lower wage per hour in this country than in a number of European countries. (Fein & Skinner, 2015). It is remarkable that leadership in the sphere of wage and free time correspondents to the leadership in labor productivity. At the same time in each country from the top group the ratio of wage to the level of wage in the USA is higher than the ratio of productivity to the American level. This correlation prevails in the second group too (it is not so only in France and, naturally, in the USA.(Kong et al., 2015)

As far as Russia is concerned, we shall accept that workers retired in 2012 began their working life on average not at the age of 19 as in West European countries and the USA but at the age of 17 which correspondents to the fact that of less number of years studying of population in Russia. Let us take the effective exit age of Russian workers equal to 58 years for men and 54 years for women because of prevalence of early retirement.

As our calculation show, the real length of service for the men retired in 2012 is, on average, 79547 hours, for women – 72147 hours. Evidently, the nominal length of working life of Russian men and women was less than for the workers of all the countries the data on which are given in the table 1. However, the total number of hours worked per man in Russia was higher than the analogues index in France, Germany, the Netherlands, Norway and Sweden.

This difference may be due to the fact that despite of the decrease of the hours worked per person in employment in economically developed countries, in Russia it had a tendency to increase this index: since 1995 to 2012 it was increasing 0,29% per year on average.

3. Conclusion

In recent years in a number of economically countries the laws were taken which were oriented to the increase in the retirement age. Such measures are connected, first of all, with demographic reasons. For example, in 2012 in Germany the population older than 65 years constituted 34.8% from those able to work, in the UK – 28.9%, Netherlands – 27.3%, the USA – 22.8%. The slowing down of the tempo of labor productivity increase, characteristic to European countries is also taken into account (5). The perspectives of changing of the value of the real length of working life demand further consideration. To reveal these perspectives it is suitable to use the following calculation procedure.

To the total number hours worked to 2012 for the persons who will retire first after the increase of the retirement age, it is necessary to add the multiplication of the number of years from 2012 to the year of the new retirement age introduction by the average hours actually worked per worker in 2012 in the given country. The results of such calculations are represented in the table 5.

Table 5: The perspectives of the real length of working life in conditions of pension reform in a number of economically developed countries

	Change of retirement age and beginning of the pension reform	**Real length of working life of a person retired in 2012 (hours)**	**Real length of working life of a person retired at the first year of the pension reform (hours)**	**Change in the real length of working time (4)-(3) (hours)**

1	2	3	4	5
Germany	67-65=2 (2031 г.)	70499 (men) 68564 (women)	67601 (men) 66126 (women)	-2898 -2438
Netherlands	67-65=2 (2021 г.)	69173 (men) 66825 (women)	69377 (men) 67223 (women)	+204 +398
UK	66-65=1 (2018 г.)	84355 (men) 83386 (women)	80768 (men) 79802 (women)	-3587 -3584
USA	67-66=1 (2022 г.)	86200 (men and women)	87190 (men and women)	+990

Source: it is computed on the basis of OECD data

Thus, 1-2 years lengthening of the nominal length of working life does not always mean that workers retired according to the new pension law have longer real working life than workers retired according to previous law. Possible growth of the working life length in the Netherlands is less than 30% from the average annual hours actually worked per worker and in the USA – a little bit more than 50%. In the limits of the modern period the total number of worked hours was lower than in the period of working life of the pensioners retired in 2012. How actual is the increase of the retirement age in Russia? The ratio of people older than retirement age to whole number of economic active population was 36% in 2012 – the percentage is high but not unique and comparable with this one in Germany (34.8%).

It is necessary to take into account the objective conditions of carrying of such measure. In 2012 only 24,9% of men of age 60-64 y.o. continued working. The share of working among women of 55-59 y.o. was 52.9%. The labor activity of the half of the given age group far from always correspondents to the demands of health preservation and dos not give reliable basis to make such work obligatory for every women older than 55 y.o.

As a result, if to introduce beginning with the year 2020 60 years retirement age for women the real length of the working life will be about 79200 hr that is there will be 7000 hr increase. To sum up, it is likely that only the reduction of real length of working life will make possible an increase of the retirement age in Russia.

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